

BALTIC SEA ENVIRONMENT PROCEEDINGS

No.49

THE BALTIC SEA JOINT COMPREHENSIVE
ENVIRONMENTAL ACTION PROGRAMME

OPPORTUNITIES AND CONSTRAINTS
IN PROGRAMME IMPLEMENTATION

HELSINKI COMMISSION
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LIST OF BALTIC SEA ENVIRONMENT PROCEEDINGS

FOREWORD

As mandated in the Baltic Sea Environmental Declaration (1992), adopted by the Ministers of Environment at the Diplomatic Conference on the Protection of the Marine Environment of the Baltic Sea Area in April 1992, the Helsinki Commission Programme Implementation Task Force (HELCOM PITF) submitted this Paper to the High Level Conference on Resource Mobilization, held in Gdansk, Poland, 24-25 March 1993. The Paper contains an overview of the key issues concerning successful long-term implementation of the “Baltic Sea Joint Comprehensive Environmental Action Programme” as prepared by the ad *hoc* high level Task Force of the Helsinki Commission (HELCOM TF).

The Gdansk Conference decided to endorse the Paper as “guidelines for implementation of the Baltic Sea Joint Comprehensive Environmental Action Programme.”

Göte Svenson

Chairman of the HELCOM Programme Implementation Task Force

EXECUTIVE SUMMARY

BACKGROUND OF THE CONFERENCE

Actions needed to restore the ecological balance of the Baltic Sea were identified in the Baltic Sea Joint Comprehensive Environmental Action Programme (Programme) endorsed by the Ministers of Environment at the Diplomatic Conference on the Protection of the Marine Environment of the Baltic Sea held in Helsinki, Finland on 9 April 1992. The aim of the High Level Conference on Resource Mobilization is to mobilize financial resources to implement this Programme in Belarus, Czech Republic, Estonia, Latvia, Lithuania, Poland, the Russian Federation, Slovak Republic and Ukraine.

This paper, which provides a basic framework for discussions at the Conference, reviews progress during the first year of Programme implementation; identifies the most important issues and constraints affecting implementation of the Programme based on lessons from these early activities; reviews funding sources and instruments currently available to implement the Programme; and outlines a framework for Programme implementation that shows how existing and additional resources can be deployed more effectively to speed Programme implementation in the short term.

THE PROGRAMME

The Baltic Sea Environmental Action Programme is a long-term programme of policy and institutional reforms, institutional strengthening, human resource development activities, and infrastructure investments to restore the ecological balance of the Baltic Sea. The Programme will be implemented in a phased manner over a period of at least twenty years. The total cost of the 20-year programme for all countries in the Baltic Sea catchment area is estimated to be about 18 billion ECU (1992), with an initial Phase I (1993-1997) projected to cost about 5 billion ECU.

The underlying strategy on which the Programme is based consists of actions by each concerned government to carry out needed policy and regulatory reforms, capacity building, and investments to control pollution from point and non-point sources, safely dispose of or reduce generation of waste, and conserve ecologically sensitive and economically valuable areas. To complement these activities, the Programme also includes elements to support applied research, environmental awareness and environmental education. The Programme includes 132 "hot spots" that comprise actions to control point and non-point source pollution. Of the 132 hot spots, 98 are located in the former centrally planned economies in the eastern and southern portions of the catchment area.

PROGRESS OF PROGRAMME IMPLEMENTATION

During the initial year of Programme activities (1992-93), emphasis has been placed on establishing priorities at the national level, and on detailed preparation of projects including feasibility studies. Detailed feasibility studies are underway or are planned at 17 of the 26 priority municipal hot spots. Environmental audits have been carried out at 29 industrial enterprises including 6 of the 9 priority hot spots, and an economic/environmental assessment of the region's pulp and paper sector was completed. The latter study reviewed market prospects and cost competitiveness at 34 pulp and paper mills in the eastern portion of the region, and

carried out a preliminary but more detailed assessments of 12 mills that are candidates for feasibility study and possible investment support.

The development of control programmes for non-point source pollution from the agriculture and livestock sectors, and the establishment of effective management programmes for wetlands and coastal lagoons requires a different approach in which the emphasis in Phase I is on establishing an effective institutional framework including management plans, and on developing and implementing well designed pilot and demonstration activities. Seven pilot studies and programmes have been established for control of agriculture and livestock runoff in hot spot areas of Russia, Estonia, Latvia, Lithuania, and Poland. Thirteen surveys, studies, and pilot programmes have been established or are planned in the most important wetland areas and in the key coastal lagoons.

KEY FACTORS AFFECTING PROGRAMME IMPLEMENTATION

While many would express the view that the availability or quantity of funds, both local and foreign, is the main if not the **only** stumbling block to speedy Programme implementation, recent experience demonstrates clearly that there are a constellation of factors that limit the mobilization, flow, and suitability of funds, and the capacity to effectively utilize them. Nearly every one of these factors or constraints is influenced directly or indirectly by the great economic and financial changes taking place in the formerly centrally planned economies of the region, and by the increasing competition for resources in potential donor countries caused by recession and persistently slow growth that limits the availability of financial assistance and private investment for environmental improvements.

Significant measures concerning policies, institutional arrangements and approaches to project design will need to be addressed to accelerate the rate of Programme implementation. These actions include:

Mobilizing Local Resources

The greatest proportion of project financing must come from local resources; however, despite the efforts on the part of each concerned government, local resources are expected to remain limited in the short term. Local and national governments are making an effort to mobilize resources through fees and fines, and to increase the revenues available for environmental projects through increased user charges. Slow progress in this regard has been largely due to the precarious position of the economies in transition. Nevertheless, the important lesson learned is that:

Early action should be taken to support the establishment of financing mechanisms and incentives, to develop the institutional capacity to implement them, and to create greater public awareness of their importance.

Utilization of External Resources

Under the prevailing economic conditions it is not surprising that the concerned countries, municipalities, and enterprises have sought increased support for project financing from external sources. The available external sources include bilateral donors providing grants and concessional funding, loans provided by international financial institutions and commercial

banks, private sector investments, and export credits and guarantees. Special sources of funding such as the Global Environment Facility, debt for environment swaps and eco-conversion funds, and support from foundations and twinning agreements will also play an important role in some aspects of the Programme. The relative proportion of the funds which come from each type of source will vary during the length of the Programme, with the country and sector involved, and from project to project. Many projects will utilize a combination of several sources.

In view of the slow build-up of local resources, there will be a critical need, at least for the short term for continued and better-coordinated support from bilateral donor organizations to implement the Programme, especially to support policy, institutional development and investment project preparation activities.

The Commission of the European Communities will also continue to play a major role through its PHARE, TACIS and LIFE programmes as they have the scope to support both national and regional activities.

The international financial institutions will continue to provide loans and implement projects for selected priority activities under the Programme consistent with the requests of the borrower and within lending limits established by creditworthiness.

Support from special sources of funding may play an important role in many aspects of the Programme in the short term, especially in the area of management of coastal lagoons and wetlands, applied research, public awareness and environmental education.

It is anticipated that over the medium and long term the requirements of the formerly centrally planned economies for assistance from bilateral donor organizations will decrease. Meanwhile, the use of loans from international financial institutions, investments from the private sector, and access to export credits and guarantees will increase as their economies are strengthened, risks are reduced, and overall creditworthiness enhanced.

Phasing of Project Investment

Because of the limited project financing capacity of present project authorities and institutions, projects will need to be phased to spread expenditures over a longer time period and to allow for concurrent strengthening of these institutions. During this initial phase of Programme implementation, projects in most cases will consist of a limited first stage investment in the most critical physical works integrated with related policy reforms and institutional strengthening. As a consequence:

Greater emphasis must be put on comprehensive feasibility studies that yield economically and financially feasible, and affordable investment projects, and that devote more attention to the assessment of the current institutional framework and the formulation of measures to strengthen that framework to support project implementation and operation.

This situation would be applicable to both municipal and industrial investments. Over the short term this approach will lead to stronger institutions and a stronger policy and legal framework

that will enable accelerated investment as the economies in transition stabilize and begin to grow.

Institutional Reforms

Major institutional reforms will be required particularly in the area of municipal water and wastewater services, to accelerate implementation of the Programme. At the recent Baltic Utilities Initiative Workshop in Riga, seventy representatives from governments, municipalities, and environmental institutions called for high priority to be given by national governments and external funding agencies to support the efforts of municipalities to foster the development of autonomous, self-financed water supply and wastewater treatment utilities. The importance of these reforms for investment is often not appreciated:

Without effective and financially sound institutions to implement projects, many sources of project finance, particularly international financial institutions and commercial banks, simply cannot be utilized.

The development of strong utilities and the provision of financial support for their high priority investment needs is accomplished most effectively through integrated water supply and wastewater projects.

Private Sector Participation

Throughout the world local governments, including many in the Baltic Sea catchment area, are turning to the private sector for the management of water supply and wastewater systems. In doing so, they seek efficiency gains in management and operation and in mobilization of private investment capital. They should be encouraged to consider any of the many options of private sector involvement in utility management and operation such as service or lease contract arrangements.

As financial markets develop and utilities become creditworthy, the financing needs of utilities should be satisfied from private sources. The present reliance on subsidies from government or government guaranteed loans from official credit agencies should be discontinued as soon as possible. Even today, attracting private financing for certain investments through "Build-Operate-Transfer" (BOT) schemes or similar arrangements have become viable options.

While the potential for private sector entry is high, the lack of an established regulatory framework and the inexperience of local authorities in dealing with the private sector has resulted in very little mobilization of private equity resources. It is therefore imperative that the government establish a system of regulations and incentives which allows local arrangements under fair and competitive conditions.

For accelerated and efficient sector development, the participation of the private sector in the management and operation of utilities and the provision of finance for investments should be strongly encouraged. Appropriate regulatory structures, however, need to be introduced to ensure that private sector activity develops under equitable conditions beneficial for both local government and the private partner.

Support for Industries in Transition

Activities will be required to support industrial pollution control, especially pre-treatment prior to discharge to municipal sewers, during the initial phase of the Programme. The slow pace and limited success of privatization and the restructuring of industry has constrained the mobilization of investment funds for industrial pollution control. The least-cost approach to these environmental problems is to integrate environmental management investments into investments in the restructuring and modernization of the production processes in order to eliminate wastes through cleaner technology and reduce investment needs for environmental management.

The private sector plays the leading role in mobilizing the funds for these investments and it has been reluctant to move quickly because of several uncertainties and risks, including the lack of clarity regarding ownership (as state owned enterprises they are unlikely to be attractive investments), uncertainty regarding the legal framework for foreign direct investment, lack of clear rules concerning environmental liability and the unknown or uncertain competitiveness, financial viability, and markets of the enterprises.

Programme Components with Long Project Development Periods

Some investments will have a long development period, particularly control of non-point sources, and the management of coastal wetlands and lagoons.

In Phase I emphasis should be placed on establishing an effective institutional framework including management plans and on development and implementation of well designed pilot and demonstration activities. These investments in the short term would provide the basis for a large number of well planned interventions to be implemented over the medium and long term in these areas. Support for development of effective policies and regulations to address these issues should be given priority during the early stages of Programme implementation.

FRAMEWORK FOR PROGRAMME IMPLEMENTATION

An implementation framework is proposed for Programme implementation. The framework identifies the key parties, funding sources and key activities which need to be undertaken during the initial phase of the Programme (1993-1997). The implementation framework which is provided in summarized form in Table A is intended to provide a means to further focus and coordinate the available resources on critical short-term activities in each Programme area.

The framework also defines activities which should be undertaken for Programme coordination and reporting and proposes possible priority actions and funding targets for each Programme element. These actions have been selected to support both the implementation of selected priority actions and to build the knowledge base necessary for major actions in the medium and long term.

Table A - Phase I . Summary of Programme Implementation Framework

Programme Element	Key Parties	Funding Sources	Key Activities	Comments
A. PROGRAMME COORDINATION AND REPORTING				
1. Programme Coordination	<ul style="list-style-type: none"> - HELCOM PITF Secretariat - HELCOM PITF Members - Cooperating Parties 	<p>HELCOM Contracting Parties</p>	<ul style="list-style-type: none"> - "Pro-active" Programme promotion - Coordinators of Programme elements - Information exchange - Register of implementation activities - Coordination links with regional complementary actions 	<ul style="list-style-type: none"> - Recruit PITF Secretariat staff - PITF members as coordinators for Programme elements - Coordination with Baltic Region Working Group for Transport & Environment and Union of the Baltic Cities
2. Programme Reporting	<ul style="list-style-type: none"> - HELCOM PITF Secretariat - HELCOM PITF Members - Cooperating Parties 	<p>HELCOM Contracting Parties</p>	<ul style="list-style-type: none"> - Issue regular Programme Newsletter - Annual Reports - Special reports as required 	<ul style="list-style-type: none"> - Newsletter issued quarterly - First Annual Report on 1993 activities
3. Programme Updating	<ul style="list-style-type: none"> - HELCOM PITF Secretariat - HELCOM PITF Members 	<p>HELCOM Contracting Parties</p>	<ul style="list-style-type: none"> - Monitor Programme implementation - Update Programme as appropriate - Review priorities under the Programme 	<ul style="list-style-type: none"> - Stress balance between local, national and regional objectives - Monitor progress in complementary policy and investment activities outside the Programme for regional air pollution
B. PROGRAMME ELEMENTS				
1. Policies, Laws and Regulations	<p>Local</p> <ul style="list-style-type: none"> - National Governments - Local Governments <p>Regional Organizations</p> <p>Foreign</p> <ul style="list-style-type: none"> - CEC - Financial Institutions - Donors <p>NGOs</p>	<p>Domestic Funding</p> <p>Foreign Grants and Loans</p>	<ul style="list-style-type: none"> - PITF member serves as coordinator - Set priorities for available resources - National and local financing mechanisms - Regulatory and enforcement strengthening - Legislation for municipal water utilities - Review water quality standards - Establish environmental assessment procedures - Coordination with groups on agriculture and transportation policy 	<ul style="list-style-type: none"> - Development of self-financing mechanisms - Environmental taxes and charges for activities - Environmental funds - Environmental considerations in privatization programmes - Coordinate with Working Group on Transport and Environment on policy measures for mobile air pollution sources - Coordination on non-point source pollution
2. Institutional Strengthening and Human Resource Development	<p>Local</p> <ul style="list-style-type: none"> - National Governments - Local Governments <p>Regional Organizations</p> <p>Foreign</p> <ul style="list-style-type: none"> - Financial Institutions - Donors <p>NGOs</p>	<p>Domestic Funding</p> <p>Foreign Grants and Loans</p> <p>Twinning agreements</p>	<ul style="list-style-type: none"> - PITF members serves as coordinator - Target institutional strengthening and human resources development - Expand Baltic Utilities Initiative - Expand municipal twinning partnerships - Strengthen local financial institutions - Support for agricultural sector 	<ul style="list-style-type: none"> - PITF mechanism to improve coordination - Priority for strengthening local financial institutions to support Programme participation - Union of the Baltic Cities requested to coordinate municipal twinning initiative - Support for priority municipalities and industries

Table A - Phase I - Summary of Programme Implementation Framework'

Programme Element	Key Parties	Funding Sources	Key Activities	Comments
<p>1. Combined Municipal and Industrial Wastewater</p>	<p>Local</p> <ul style="list-style-type: none"> - National Governments - Local Governments - Water/Wastewater Companies <p>Regional</p> <ul style="list-style-type: none"> - Union of the Baltic Cities <p>Foreign</p> <ul style="list-style-type: none"> - CEC - Financial Institutions - Bilateral Donors - Private Sector - Export Credit Agencies 	<p>Primary Sources:</p> <ul style="list-style-type: none"> - Domestic Funding - Foreign Loans and Investments <p>Secondary Sources:</p> <ul style="list-style-type: none"> - Grants - Loans/Investments - Twinning agreements - Eco-Conversion 	<ul style="list-style-type: none"> - PITF member serves as coordinator - Establish local project financing mechanisms - Mobilize funds for project financing - Preparation of feasibility studies - Expand metering & increase water charges - Institutional reform and strengthening - Demonstration projects - Priority investments - Rationalization of water use - Industrial pre-treatment activities - Advisory support on industrial pre-treatment - Rehabilitate existing facilities/complete selected facilities, including sludge - Establish twinning arrangements 	<ul style="list-style-type: none"> - Phased implementation of improvements - Undertake projects on a case by case basis - Support for feasibility studies - Institutional & financial reforms to encourage investment - In decentralized environmental management, local governments needs special attention - Baltic Utilities Initiative Workshop in Riga adopted the Riga Statement, stressing need for financially and institutionally autonomous water supply and sewerage utilities - Twinning arrangements will be important
<p>4. Industrial Pollution Control</p>	<p>Local</p> <ul style="list-style-type: none"> - Industrial Enterprises - National Governments - Local Governments <p>Foreign</p> <ul style="list-style-type: none"> - CEC - Financial Institutions - Donors - Private Sector - Export Credit Agencies 	<p>Primary Sources:</p> <ul style="list-style-type: none"> - Domestic Funding - Foreign Loans and Investments <p>Secondary Sources:</p> <ul style="list-style-type: none"> - Grants - Cooperative Programmes, industry-to-industry 	<ul style="list-style-type: none"> - PITF member serves as coordinator - Evaluation of financial viability of priority enterprises - Phased implementation of recommendations of independently prepared environmental audits of priority industrial facilities - Implementation of demonstration waste minimization programmes at priority industrial facilities - Establish industry-to-industry twinning, especially for small and medium scale industries 	<ul style="list-style-type: none"> - Phased implementation of improvements - Projects undertaken on a case by case basis following determination of economic viability - Providing clear environmental rules for the private sector is essential to attract foreign investment and remove uncertainty for business - Resolution of issues associated with ownership and responsibility environmental liability are priorities - Twinning arrangements will be important
<p>5. Non-Point Source Pollution (Agricultural Runoff, Rural Settlements and Large Livestock Operations)</p>	<p>Local</p> <ul style="list-style-type: none"> - Agriculturalists - National Governments - Local Governments <p>Foreign</p> <ul style="list-style-type: none"> - CEC - Financial Institutions - Donors - Applied Research Organizations - NGOs 	<p>Primary Sources:</p> <ul style="list-style-type: none"> - Domestic Funding <p>Secondary Sources:</p> <ul style="list-style-type: none"> - Grants - Foreign Loans and Investments - Debt for Environment Swaps - Eco-Conversion - Twinning arrangements 	<ul style="list-style-type: none"> - PITF member serves as coordinator - Development/implementation of agricultural policies - Reduction of agriculture input subsidies - Continued definition of problems & causes - Demonstration projects - Applied Research/Extension - Evaluation/implementation of alternative agricultural approaches - Develop special twinning arrangements for non-point source element 	<ul style="list-style-type: none"> - Phased implementation of improvements - Policy actions needed for many aspects - Demonstration projects critical to establish appropriate actions and their local costs - Support for agricultural extension services critical for long-term impact - Uncertain future of livestock operations slows investments to address control of wastes - Twinning arrangements will be important

Table A - Phase I - Summary of Programme Implementation Framework ¹				
Programme Element	Key Parties	Funding Sources	Key Activities	Comments
6. Management Programmes for Coastal Lagoons and Wetlands	<ul style="list-style-type: none"> Local - National Governments - Local Governments Regional - World Wide Fund for Nature Foreign - CEC - Financial Institutions - Donors NGOs 	Primary Sources: <ul style="list-style-type: none"> - Domestic Funding - Foreign Grants - Debt for Environment Swaps Secondary Sources: <ul style="list-style-type: none"> - Loans - Eco-Conversion - Cooperative Agreements 	<ul style="list-style-type: none"> - PITF working group under leadership of WWF to coordinate this element - Inventories of key areas - Management plans developed in cooperation with local government - Implement demonstration project - Protect key areas through public ownership - National coordination framework in collaboration with HELCOM PITF - Measures should be taken to prepare regional project for potential funding by Global Environment Facility 	<ul style="list-style-type: none"> - Priority due to high level of stress suffered by these fragile environments - Management plans & applied research needed before starting full scale activities - Changes in land use due to transfers from public to private ownership may have adverse impacts - Development of basic data, initial management plans and formal requests from governments required for a regional project for possible Global Environment Facility funding
7. Applied Research	<ul style="list-style-type: none"> - HELCOM Committees - International Baltic Sea Fisheries Commission - Academic Institutions - Applied Research Organizations 	Domestic Funding Grants Cooperative Agreements	<ul style="list-style-type: none"> - PITF working group in coordination with the relevant existing HELCOM Committees - Proposed Applied Research Programme prepared and coordinated by HELCOM PITF Secretariat in coordination with selected members of HELCOM PITF and relevant HELCOM Committees - Abstracts of key Programme related to applied research should form part of Annual Report 	<ul style="list-style-type: none"> - Priority should be given to establishing linkages between Programme activities and impacts on human health - Investigation of linkages between main Sea and coastal lagoons should be given priority - Continue work on environmental trends and evaluation of critical loads - Consider special studies on transportation impacts on Baltic Sea in conjunction with Working Group on Transport & Environment
8. Public Awareness and Environmental Education	<ul style="list-style-type: none"> - Citizens of all Baltic countries - National Governments - Local Governments - Union of the Baltic Cities - Coalition Clean Baltic - NGOs - Mass media - Education systems 	Domestic Funding Grants Private Citizen Contributions to NGOs	<ul style="list-style-type: none"> - PITF working group under leadership of Coalition Clean Baltic to coordinate - Widespread base of public support through information on long-term objectives of Programme - Promotion of understanding of linkages between environment and development in the Baltic region 	<ul style="list-style-type: none"> - Priority given to making public aware of the long-term nature of the Programme and its benefits in order to build a broad-based constituency - NGOs would play an important role at regional, national and local levels - Materials should be designed for regional use with country specific additions

¹ A more detailed version of the Programme Implementation Framework is included as Table 11 of the main text.

Chapter 1

INTRODUCTION

1.1 BALTIC SEA ENVIRONMENTAL DECLARATION

The Baltic Sea Environmental Declaration (1992), adopted by the Ministers of Environment at the Diplomatic Conference on the Protection of the Marine Environment of the Baltic Sea held in Helsinki, Finland on 9 April 1992, called for holding a Conference on Resource Mobilization to support the long-term implementation of the Baltic Sea Joint Comprehensive Environmental Action Programme (Programme). The Ministry of Environmental Protection, Natural Resources and Forestry of the Republic of Poland agreed to serve as the host of this meeting, to be held 24-25 March 1993 in Gdansk. The organizers of the Conference are the Polish Secretariat for the Helsinki Convention, and the Helsinki Commission (HELCOM), with the assistance of local authorities in Gdansk.

1.2 THE PROGRAMME IMPLEMENTATION TASK FORCE (HELCOM PITF)

The Programme is a comprehensive, long-term plan of action that identifies activities in all areas of the Baltic Sea catchment to restore the ecological balance of the Sea. The Programme will be implemented in a phased manner over a period of at least twenty years. In order to support this long-term process, the Baltic Sea Environmental Declaration also established a permanent Programme Implementation Task Force (HELCOM PITF) within the HELCOM framework to initiate and facilitate implementation of the Programme, and to advise the Commission on further action that may be necessary to meet the objectives set forth in the Declaration. The unique feature of the PITF is its intention to take *aprouctive* role in the development, implementation, and monitoring of the Programme. The members of the Task Force include the Contracting Parties to the Helsinki Convention - Denmark, Estonia, Finland, Germany, Lithuania, Poland, Russia and Sweden. In addition the Commission of the European Communities and other countries of the catchment area of the Baltic Sea - Belarus, Czech Republic, Latvia, Norway, Slovak Republic and Ukraine - also participate in the Task Force, together with international financial institutions - European Bank for Reconstruction and Development (EBRD), European Investment Bank (EIB), Nordic Investment Bank (NIB), Nordic Environment Finance Corporation (NEFCO), and the World Bank (WB) - and nongovernmental organizations - Coalition Clean Baltic (CCB), Greenpeace International, and the World Wide Fund for Nature (WWF). The International Baltic Sea Fishery Commission (IBSFC) is also a participant in the HELCOM PITF.

1.3 PURPOSE OF THE CONFERENCE

The aim of the High Level Conference on Resource Mobilization, held at the ministerial level, is to mobilize financial resources for needed actions in Belarus, Czech Republic, Estonia, Latvia, Lithuania, Poland, the Russian Federation, Slovak Republic and the Ukraine. Meeting this objective will require: a review of Programme implementation to date; an evaluation of constraints to Programme implementation and actions to overcome those constraints; and an assessment of actions which can be taken to mobilize additional resources and use available ones

more efficiently. As the 1992 Diplomatic Conference concluded, the mobilization of local and foreign financial resources needed for investments in the formerly centrally planned economies in the eastern and southern parts of the Baltic Sea **catchment** would be one of the greatest challenges to timely and effective implementation of the Programme. As it was anticipated that funds for projects and actions identified for areas in the Nordic countries and Germany would be mobilized locally, these are not specifically addressed in this document.

1.4 **BASIC APPROACH OF THE PAPER**

This Paper is intended to review issues related to meeting the objectives of the Conference and to support the accelerated mobilization of resources to implement the Programme. While the Conference will address the mobilization of local and foreign financial resources to implement all elements of the Programme, the Paper concentrates more particularly on mobilization of resources for the investment elements of the Programme due to their complexity in funding and implementation. These elements include measures to control point sources (municipal and industrial activities), non-point sources (runoff from agricultural activities including livestock, and pollution from rural settlements) of pollution, and the management of coastal lagoons and wetlands.

The Paper reviews the investment elements of the Programme in terms of the identified priority projects and their estimated cost. Current progress of activities required for development and preparation of many of these projects is also examined. **Recognizing** the importance of policy reform, institutional strengthening, human resource development, applied research and public awareness and environmental education, actions to support these Programme elements are discussed in the context of the proposed Programme Implementation Framework.

1.5 **ROLE OF THE INTERNATIONAL FINANCIAL INSTITUTIONS**

The cooperating international financial institutions have assisted the states of the Baltic Sea catchment area since the Prime Ministerial-level Baltic Sea Environmental Conference in Ronneby, Sweden in 1990. As members of the HELCOM *ad hoc* high level Task Force and its Steering Committee, they organized and supervised pre-feasibility studies of the river basins which drain the eastern and southern parts of the Baltic Sea catchment with grant funds provided by the Commission of the European Communities (CEC) and trust funds provided by Denmark, Finland, Norway, Sweden and the Nordic Project Fund (NOPEF). These studies assessed the nature and magnitude of pollution problems and loads from various point and non-point sources, and identified measures including investments in infrastructure to control pollution of the Sea. The results of these studies formed an important part of the basis for the preparation of the strategy as well as the specific investment portfolio incorporated into the long-term Programme. The 1992 Baltic Environmental Declaration also specifically invited the international financial institutions to continue their support as members of the HELCOM PITF, and to assist HELCOM to plan the Conference on Resource Mobilization. Teams from the international financial institutions visited a wide range of public and private sources of finance in the Baltic Region, Western Europe, North America and East Asia, to identify the types and level of financial resources that could be potentially available to implement the Programme.

Chapter 2

RESOURCE NEEDS FOR IMPLEMENTATION OF THE BALTIC SEA JOINT COMPREHENSIVE ENVIRONMENTAL ACTION PROGRAMME

2.1 OUTLINE OF THE PROGRAMME

The Rationale. Nearly twenty years of work coordinated by HELCOM committees, and studies conducted for the HELCOM ad hoc high level Task Force, have followed ecological developments in the Baltic Sea catchment area and demonstrated the need to reduce pollution loads reaching the Sea in order to restore its ecological balance. The preparatory work for the Programme concluded that preventive and curative actions are necessary in all the Baltic Sea catchment area countries to reduce the pollution load reaching the Sea. Some of these actions are already underway. For example, some state owned enterprises with polluting production activities have shut down; wastewater treatment plants are planned or partly constructed; new protected areas have been created, and environmental controls have been strengthened. These on-going activities require support; in particular, new environmental policies and pollution control programmes need to be formulated and adopted in the formerly centrally planned economies.

The Strategy. The underlying strategy on which the Programme is based consists of actions by each concerned government to carry out needed policy and regulatory reforms, capacity building, and investments to control pollution from point and non-point sources, safely dispose of or reduce the generation of waste, and conserve ecologically sensitive and economically valuable areas. To complement these activities, the Programme also includes elements to support applied research, environmental awareness and environmental education. Actions will be phased to keep pace with the gradually increasing capacity to mobilize financial resources and pay for recurrent costs of environmental management in these transforming economies. In the first years, emphasis will be placed on creating the enabling policy environment and institutional arrangements, on limited investment in the highest priority projects, including pilot and demonstration projects, and on promoting private investment and initiative through concessions and incentives. Environmental investment programmes in the northern and western part of the Region are also an integral part of the Programme and are expected to be financed from local resources.

The Programme Components. The Programme consists of six components which comprise broad and distinct areas of action:

- **policy, legal, and regulatory reforms** - to establish a long-term environmental management framework in each country, including macro-economic policies and incentives; financial facilities, policies and controls; environmental standards, laws, and appropriate systems for monitoring and enforcement of regulations. Actions would include studies of new legal regulatory arrangements and drafting of governmental and parliamentary decision documents; policy studies of options, costs and benefits; investment in new monitoring equipment, upgrading of laboratory equipment and procedures, upgrading of data processing and analytical

capacity; and development of new organizational structures and arrangements to carry out management functions;

- **institutional strengthening and human resources development** - build the organizational and human capacity to enforce regulations; plan, design, and implement environmental management systems including infrastructure; and manage natural resources efficiently. The focus of the Programme is on training people to use new concepts of management and new technology, and developing the organizational and administrative framework for them to work effectively and efficiently;
- **infrastructure investment** - to invest in specific measures to control point and non-point sources of pollution, and minimize and dispose of wastes, including the rehabilitation and modernization of existing infrastructure, development of new infrastructure; and the conservation of environmentally sensitive areas and resources;
- **management of coastal lagoons and wetlands** - to formulate and carry out programmes to manage these environmentally sensitive and economically valuable areas which serve as important buffers of pollution before it reaches the Sea, and provide critical habitat for diverse flora and fauna including commercially important fisheries. These management systems will include land use controls and limited infrastructure, and in some cases will be integrated with compatible eco-tourism and recreation developments possibly through public/private joint ventures or private investment;
- **applied research** - to build the knowledge base needed to develop solutions, transfer technology, and broaden understanding of critical problems. Specific priority topics include environmental trends, evaluation of critical loads, assessment of risks to human health, future trends on transportation and its environmental management, and management of coastal lagoons and wetlands; and
- **public awareness and environmental education** - to develop a broad and sustainable base of support for the implementation of the Programme. The participation of non-governmental organizations, and the development of effective environmental education programmes are essential activities in promoting public awareness and political commitment.

A summary of the preliminary cost estimates for these actions recommended to be undertaken in a phased manner over a period of twenty years or more, by *all countries* in the Baltic Sea catchment area, is provided as Table 1. It should be noted that the funding for elements concerning policies, laws, regulations, institutional strengthening and human resource development, applied research, public awareness and environmental education are anticipated to be provided primarily by national and local governments, foreign grants and in some cases by public contributions to nongovernmental organizations. In the case of municipal wastewater, there are two categories: municipal wastewater treatment, which addresses anticipated investments in the traditional market economies of Denmark, Finland, Germany and Sweden, which would be financed from local resources; and combined municipal and industrial wastewater treatment, which would address anticipated investments in the formerly centrally planned economies of Belarus, Czech Republic, Estonia, Latvia, Lithuania, Poland, Russian Federation, Slovak Republic and the Ukraine.

Table 1 - Summary of Estimated Costs by Programme Element			
Element	Phase I Millions ECU (1993-1997)	Phase II Millions ECU (1998-2012)	Total Millions ECU (1993-2012)
1. Policies, Laws and Regulations	5	5	10
2. Institutional Strengthening and Human Resources Development	70	140	210
3. Investment Activities			
A. Point Source Pollution			
- Immediate Support and Warning Systems	50		50
- Municipal Wastewater Treatment	1'000	2'000	3'000
- Combined Municipal and Industrial Wastewater Treatment	1'600	4'000	5'600
- Pulp and Paper Industry Environmental Control	400	1'000	1'400
- Environmental Control at Other Industries	300	1'000	1'300
- Solid and Hazardous Waste Management	200	800	1'000
- Air Quality Management	460	1'200	1'660
B. Non-Point Source Pollution (Agricultural Runoff, Livestock Operations, Rural Settlements)	800	2'700	3'500
4. Management Programmes for Coastal Lagoons and Wetlands	100	120	220
5. Applied Research	10	20	30
6. Public Awareness and Environmental Education	5	15	20
TOTAL	5'000	13'000	18'000

2.2 THE INVESTMENT COMPONENT - PRIORITIES, PROJECTS AND COSTS

The investment component of the Programme can be divided into four portfolios:

- investment in **municipal environmental management**, especially in the collection, treatment, and disposal of wastewater. Existing municipal water systems in the formerly centrally planned economies of the region commonly include all or most industrial wastewaters within the service area of the sewer network, meaning that many are functioning as combined municipal and industrial wastewater systems;
- investment in **industrial waste management** at specific sites and complexes. These projects are primarily for wastewater management but also include waste minimization, safe disposal of solid wastes, treatment and safe disposal of various forms of hazardous and toxic wastes, and environmental restoration from past degradation;

- investment to control polluted water runoff and discharges from **agricultural lands, large livestock operations and rural settlements**. Agriculture and livestock are major contributors of nutrient loads to the Sea; and
- investment in the development of management programmes and related infrastructure for the conservation of **coastal lagoons and wetlands** which are critical eco-systems necessary for restoration and long-term environmental maintenance of the Baltic Sea.

The pre-feasibility studies prepared for the Programme identified priority areas for intervention, including: point sources where uncontrolled or inadequately treated wastewaters were being discharged and interventions would be required; and non-point source issues relating to diffuse pollution from agricultural runoff, livestock operations, rural settlements, and environmentally sensitive areas which needed management. Investment priorities among these environmental “hot spots” were established on the basis of estimates of the character and magnitude of the impact of each source, particularly on public health and on the Baltic Sea, and on a preliminary estimate of the economic feasibility and effectiveness of the proposed interventions. The latter considerations are the main focus of studies and evaluations during the current stage of project development and preparation.

2.3 COMBINED MUNICIPAL AND INDUSTRIAL WASTEWATER

Municipal wastewater in the eastern and southern countries of the Baltic Sea catchment area is generally a combination of domestic and industrial wastewater. Under the present system, most industries within the service area of a municipal water and wastewater enterprise are connected to the sewer system, and their wastewater after pre-treatment is collected and treated at the municipal wastewater treatment plant. Pre-treatment investments have often not been implemented or are poorly operated and maintained. Monitoring of pre-treatment has been difficult, and compliance with permits and regulations varies greatly. Non-compliance can have significant impact on investment needs for treatment plant upgrading or expansion since the industries commonly contribute large organic loads and a large amount of solids which are major factors in determining plant size and cost.

As outlined in Table 2 below, the combined municipal and industrial wastewater management component of the Programme represents 44 percent of the total number of “hot spots”, and over half of these are “*priority* hot spots” (these also represent over half of all priority projects in the total Programme).

Table 2 - Priority Municipal Environment Projects in the Programme					
Country	No. of Hot Spots	No. of Municipalities among the Hot Spots	No. of Priority Municipalities	Total Cost of Priority Projects (million ECU)	Estimated Foreign Costs (million ECU)
Russia	18	5	4	608	261
Estonia	13	5	2	111	32
Latvia	9	3	3	126	96
Lithuania	15	9	3	182	77
Poland	37	19	13	1'350	369
Czech Republic	3	1	1	79	16
TOTAL	95	42	26	2'456	851

Table 2 summarizes the scope of the combined municipal and industrial wastewater management investment programme in the Programme in terms of the total number of "hot spots," the number of municipal wastewater management projects identified in the Programme as "hot spots", and the number and estimated cost of "**priority** hot spots."

Several of the priority municipal hot spots are among the highest national environmental investment priorities in the respective country, e.g., St. Petersburg and Kaliningrad in Russia, Tallinn in Estonia, Liepaja in Latvia, Vilnius, Kaunas, and Klaipeda in Lithuania, and Gdansk, Krakow, and Wroclaw in Poland and Ostrava in the Czech Republic. There are also a number of smaller municipalities in the Programme including several on the "priority hot spot" list, such as Parnu in Estonia; Daugavpils in Latvia; Siauliai in Lithuania, and Torun in Poland. In addition, there are numerous smaller municipalities with serious water system problems and lack of wastewater collection and/or treatment facilities. Although locally significant, they are not an early priority in the Programme.

The projects identified in the Programme generally consist of water use rationalization programmes, industrial pre-treatment programmes, rehabilitation and expansion of wastewater treatment plants, new wastewater treatment plants where none exist at present, expansion of sludge disposal facilities, and rehabilitation and expansion of the sewer collection networks. While only equipment and minor civil works are needed to complete construction of wastewater treatment plants in a number of important cases, these projects nevertheless represent very substantial investments of foreign exchange.

Moreover, the investments in the Programme are likely to be phased over at least 10-15 years because of insufficient creditworthiness of the municipalities and water companies. The first phase investment project cost and financing requirement is therefore likely to be perhaps one-third or less of the current cost estimate as summarized in Table 2.

The potential of achieving the full benefit from only the incremental investment in partially completed projects would appear to be a very attractive investment that could be implemented more quickly than other projects. However, these projects are actually more complex and problematic than it first appears because of very important issues that cannot be overlooked. For example, the investment and the resulting operating burden may still not be affordable or

sustainable without investments in other parts of the water and wastewater system including investments to reduce water consumption and energy use. In many cases, the original design may not be the least cost solution and changes in the design of the partially completed investments may be required. In all cases tariff reform is essential to generate resources to finance the project, and institutions need strengthening to manage the municipal water systems.

2.4 INDUSTRIAL WASTE MANAGEMENT

The Programme's industrial sector portfolio is summarized below in Tables 3 and 4.

Country	No. of Hot Spots	No. of Industrial Hot Spots	No. of Priority Industrial Hot Spots	Total Cost of Priority Projects (million ECU)	Estimated Foreign Costs (million ECU)
Russia	18	10	2	8	6
Estonia	13	4	1 ¹	1'071	232
Latvia	9	5	2	91	91
Lithuania	15	5	-	-	-
Poland	37	13	3	131	48
Czech Republic	3	2	1	35	7
TOTAL	95	39	9	1'336	384

1 Baltic and Estonian Power Plants. near Narva.

The industrial sector is represented by a smaller number of "hot spots" than the municipal sector, and a much smaller number of **priority** "hot spots". The smaller proportion of purely industrial "hot spots" reflects the high degree of integration of industrial wastewater management with municipal wastewater management, resulting in the combined systems discussed in Section 2.3. The **sectoral** composition of the industrial investment portfolio is summarized in Table 4.

The restructuring of industrial enterprises, major increases in the costs of energy and raw materials, and the decline in industrial production that has been a consequence of the shock of economic transition, has already significantly reduced industrial pollution loads. In any case, major investments in industrial environmental management should be avoided in non-viable enterprises. The low number of priority sites therefore also reflects the great uncertainty over the long-term viability of existing enterprises and industrial complexes, and the slow progress of privatization. Most improvements at economically viable industrial facilities will need to be implemented in a phased fashion based on the findings of independently-prepared environmental audits and other types of **specialized** studies which focus on the identification of least-cost solutions for environmental improvements at existing facilities. Efforts also need to be directed to improving the standard of operation and maintenance which is responsible in many instances for a significant portion of the wastes generated by industrial enterprises.

Sector	No. of Hot Spots	No. of Priority Hot Spots	Total Cost of Priority Projects (million ECU)	Estimated Foreign Costs (million ECU)
Pulp & Paper	10	3	80	78
Metals	5	-	-	-
Energy	1	1	1'071	232
Food	2	-	-	-
Pharmaceuticals	1	1	19	19
Chemicals	13 ¹	4	166	55
Oil	2	-	-	-
Various	5 ²			
TOTAL	39	9	1'336	384

1 Includes a number of mixed industrial sites and complexes in Poland

2 Includes two hazardous waste sites in Russia, and salt discharge from mining industry operations in Poland

2.5 NON-POINT SOURCE POLLUTION

The Programme has identified the need to take priority action to address control of non-point sources of pollution from agriculture, large livestock operations, and rural settlements, which are a major cause of pollution of surface and groundwater supplies locally, and significantly contribute to the nutrient loading of the coastal waters and Baltic Sea. This will require development of activities which combine policy actions, investments, applied research, rural extension activities and farmer/community participation. Key policy actions include setting prices for fertilizers, pesticides, and livestock feed that discourage excessive use of these inputs, as well as establishing future agricultural development strategies that are environmentally sustainable. Field-based activities will need to occur over large areas - such as the drainage basins of tributaries of the major rivers which discharge into the Baltic. In the case of livestock operations, actions will need to be taken to address the management of wastes in a cost-effective manner, once the future of these facilities can be resolved.

Effective actions to address control of non-point source pollution will require the development and implementation of demonstration activities to define appropriate measures, test their effectiveness under local conditions, and establish cost factors. Due to the highly incremental nature of many of the required actions, they constitute the part of the Programme which will take the longest to implement and to obtain benefits. They will also be the most socially complex, given the need to involve farmers and rural inhabitants.

country	No. of Hot Spots	No. of Agriculture Hot Spots	No. of Priority Agriculture Hot spots	Total Cost of Priority Projects (million ECU)	Estimated Foreign Costs (million ECU)
Russia	18	2	1	93	37
Estonia	13	2		170	16
Latvia	9	1	1	200	20
Lithuania	15	1	1	200	20
Poland	37	2	2	1'800	1'200
Czech Republic	3				
TOTAL	95	8	5	2'463	1'293

2.6 COASTAL LAGOON AND WETLAND MANAGEMENT

The Programme includes development and implementation of a series of management programmes for coastal lagoons and wetlands. These programmes are of high priority due to the critical role played by these eco-systems in the maintenance of the Baltic Sea. They serve as important buffers for pollution to the Baltic Sea by acting as natural nutrient traps, provide variable levels of treatment of bio-degradable wastes, and constitute critical habitat for diverse fauna and flora. Preparation of management plans for coastal lagoons and wetlands is complicated because it requires extensive local consultation, involves complex issues relating to resource use and ownership, and requires both investments and land use controls. There is a direct link between actions to address diffuse sources of pollution, and protection of coastal lagoons. A significant portion of present pollution loads are trapped in and adversely affect the semi-enclosed coastal lagoons. The priority action programme requires in several locations the establishment of co-operative programmes between two countries which share management responsibility for these "common resources."

Country	No. of Coastal Lagoon/ Wetland Hot Spots	No. of Priority Coastal Lagoon/ Wetland Hot Spots	Total Estimated Cost (million ECU)	Estimated Foreign Costs (million ECU)
Estonia	1	1	30	5
Estonia/Latvia	1	1	20	5
Lithuania/Russia (Kaliningrad)	1	1	30	10
Poland/Russia (Kaliningrad)	1	1	20	5
Poland/Germany	1	1	20	5
TOTAL	5	5	120	30

Chapter 3

PROGRESS IN IMPLEMENTATION OF OF THE PROGRAMME

3.1 INTRODUCTION

This chapter provides a summary of ongoing investment activities and progress to date of preparatory steps for undertaking new investment initiatives as part of the Programme. The pre-feasibility studies developed to support design of the Programme provided an initial review of needs, an evaluation of needed measures and actions, and indicative cost estimates which are summarized and presented in the Programme as proposed projects. Many of the activities undertaken to date either involve the preparation of feasibility studies of these projects, or reaching agreements between municipalities, industrial enterprises and other organizations to allow for preparation of the necessary studies, or demonstration activities. In many instances, especially in the combined municipal and industrial wastewater area, funding is currently being sought for preparation of comprehensive feasibility studies.

3.2 ONGOING INVESTMENTS AND OTHER ACTIVITIES

There are important ongoing investments and other activities to improve environmental management and pollution control in the countries in the eastern and southern parts of the Baltic Sea catchment area. These initiatives have relied almost entirely on local resources and have included the establishment and operation of Environmental Funds to provide partial project financing, construction of treatment and waste disposal works, and establishment of an institutional framework for environmental management, including laws, standards and regulatory and enforcement procedures.

The Nordic countries and Germany are carrying out a series of investments for pollution control, including investments at hot spots identified in the Programme. In the case of Germany, this includes very substantial efforts in the new Lander, part of which lie in the Baltic Sea catchment. Most of the German efforts are supported by local and central government budget resources and transfers with additional resources provided by the national banking system (e.g. Kreditanstalt für Wiederaufbau - KfW), as well as by grants from the Commission of the European Communities (ERDF) and loans from the European Investment Bank.

3.3 INVESTMENT PROJECT PREPARATION

In the case of investment projects, the key activity is preparation of a comprehensive feasibility study. Experience has shown that prudent and patient preparation and design of interventions, whether they involve infrastructure investments, training, or institutional capacity building, is well rewarded by more effective and sustainable results. They also allow for the identification of phased approaches for long-term project implementation, which allows for expenditures to be made over a longer period of time consistent with the availability of financial resources. Well prepared comprehensive feasibility studies which examine technical, administrative, financial, economic and environmental aspects of projects have proven to result in significant reductions in

implementation periods and savings in investment costs and operation and maintenance expenditures.

The pro-active involvement of local institutions and expertise at all stages of project preparation should be seen as a key pre-requisite for effective and sustainable results as well as for significant savings in investment costs. Feasibility studies should also include investigation of the realistic availability of local resources (financial, institutional, technical, facilities, etc.), and the adequacy of the existing institutional, legal and organizational framework.

3.4 COMBINED MUNICIPAL AND INDUSTRIAL WASTEWATER

Initiatives Completed, Ongoing and Planned. Studies in the context of the Programme have been initiated or are planned, subject to the availability of funds for 19 of the 26 municipal/industrial hot spots as indicated below in Table 7.

Country	City	Executing Agency	Amount (ECU)	Source of Funds	Scheduled Completion
Russia	St. Petersburg	Finland (MOE) Russia	TBD ¹	Finland/Russia	Joint Project Review
Estonia	Tallinn	EBRD Finland (MOE) ²	150'000	Finland	June 93
Estonia	Parnu ³	EBRD	195'000	Norway	July 93
Latvia	Liepaja	WB	TBD	CEC (PHARE)	TBD
Lithuania	Vilnius	Denmark (NEPA)	277'000	Denmark	February 93
Lithuania	Kaunas	EBRD Sweden (BITS) ²	171'000	Sweden	July 93
Lithuania	Klaipeda	NIB	60'000	Sweden/Finland	March 93
Poland	Bydgoszcz	WB	TBD	TBD	TBD
Poland	Gdansk	EBRD	300'000	CEC (PHARE)	Completed
Poland	Gdynia	EBRD	150'000	CEC (PHARE)	Completed
Poland	Krakow	WB/EBRD	650'000	US TDP	TBD
Poland	Lodz	EBRD WB	175'000 TBD	CEC (PHARE) TBD	January 93 TBD
Poland	Lublin	WB	TBD	TBD	TBD
Poland	Torun	WB	TBD	TBD	TBD
Poland	Warsaw	WB	TBD	TBD	TBD
Poland	Wroclaw ⁴	EBRD WB	49'000 TBD	Netherlands TBD	TBD TBD
Poland	Wloclawek	WB	TBD	TBD	TBD
Poland	Zielona Gora	Denmark (NEPA)	225'000	Denmark	TBD
Czech Republic	Ostrava	EBRD	185'000	CEC (PHARE)	February 93

1 To be determined.

2 Preliminary technical studies completed and financed by indicated bilateral agency.

3 Parnu is one of the municipalities included in the EBRD Small Municipalities Project in Estonia.

4 World Bank to carry out comprehensive feasibility study; EBRD carrying out a review of wastewater treatment.

Resource Needs For Project Preparation And Feasibility Studies. In the case of some of the projects listed in Table 7, extensive technical work on design of wastewater treatment works has already been completed, including the selection of treatment technology and determination of plant size, based on current levels of water consumption and industrial loads. Nevertheless, the time, which may vary from 6 months to over one year, and resources ranging from 150-250,000 ECU up to about 500-1,000,000 ECU, required for feasibility studies is still substantial, given the complex institutional and financial issues which dominate decision making on the feasibility and financing of the project. Many of these key issues identified during current work in the Baltic region are summarized in Attachment A. For example, restoration and redevelopment of the major combined municipal and industrial systems in St. Petersburg and Katowice region will require extensive preliminary planning and investigation to identify a feasible strategic phased approach to the system before individual project studies would be appropriate.

The project preparation programme outlined in Table 7 will cost between 4.0 and 5.0 million ECU (known funding commitments as shown are about 2.6 million ECU). If we assume an average cost for a feasibility study of about 200,000 ECU for the remaining *priority* "hot spots," and an average of about 400,000 ECU for the other "hot spots" (assuming less preliminary technical and other studies are available), then an additional 8 to 11 million ECU will be needed over time to prepare all the municipal "hot spots" in the Programme (allowing for contingencies). This is a very modest sum given the size of the entire problem involved.

Resource Needs For Additional Studies. Additional preparatory activities are commonly needed after the feasibility study. For example, detailed technical surveys and studies of industrial sources and pre-treatment requirements and facilities are needed for final design work. Programmes for water conservation, metering, and strengthening water utility management will also need to be funded and carried out in parallel with the investment programme. Some of these additional activities will be financed from the proceeds of project financing, and would require an additional 3-5 million ECU.

In summary, total incremental project preparation requirements for all the "hot spots" identified in this sector are therefore in the range of 15-20 million ECU.

3.5 INDUSTRIAL WASTE MANAGEMENT

The basic approach to addressing the needs in this element of the Programme is conditioned by the following considerations:

- first, the least-cost solution to industrial pollution control and environmental management problems is commonly found by dealing with wastes at their source rather than at the end-of-the-pipe;
- secondly, the key factor in reducing investment requirements for industrial pollution control is to reduce or eliminate wastes and emissions by changing to cleaner production technology and making environmentally beneficial changes in production process; and
- thirdly, substantial investments in pollution control at enterprises that are not economically competitive under market conditions and are unlikely to survive the economic transition, should be avoided.

Industrial audits, industrial efficiency and environmental reviews, waste minimization demonstration programmes, and selected demonstration projects are summarized in Table 8.

Table 8 - Initial Activities at Priority Industrial Facilities/Areas				
Country	Plant	Executing Agency	Source of Funds	Type of Activity
Russia (Karelia)	Segezha Pulp and Paper	EBRD/NIB	Finland	Environmental Audit
Russia (St. Petersburg)	Krasnyi Bor Hazardous Waste Treatment Plant	NIB/NEFCO	Finland	Project Proposal Evaluation
Russia (St. Petersburg)	Svetgorsk Pulp and Paper Sjasstroi Pulp and Paper Leningrad Board Mill Krasnogorodsk Pulp and Paper	EBRD/NIB	Finland	Environmental Audit
Russia (Kaliningrad)	Sovetsk Pulp and Paper	EBRD/NIB	Finland	Environmental Audit
Russia (Kaliningrad)	Kaliningrad No. 2 Pulp and Paper	EBRD/NIB	Finland	Environmental Audit
Estonia	Baltic Power Station - Narva	Min. of Environment, Estonia	Finland	Pilot Desulfurization Plant
Estonia	Oil Shale Chemical Plant - Kohtla Järve	USAID	United States	Waste Minimization Demonstration Project
Estonia	Kehra Pulp and Paner	EBRD/NIB	Finland	Environmental Audit
Estonia	Meat Processing Plant - Parnu	USAID	United States	Waste Minimization Demonstration Project
Latvia	Electra-plating Industries - Riga	USAID	United States	Waste Minimization Demonstration Project
Latvia	Rubber Shoe Factory Kvadrats - Riga	USAID	United States	Environmental/Waste Minimization Assessment
Latvia	Sloka Pulp and Paper	EBRD/NIB	Finland	Environmental Audit
Latvia	Latvbiofarm - Olaine	USAID	United States	Environmental/Waste Minimization Assessment
Latvia	Synthetic Fiber Plant - Daugavpils	USAID	United States	Waste Minimization Demonstration Project
Lithuania	Amalg Azotaz Fertilizer Plant - Jonava	USAID	United States	Waste Minimization Demonstration Project
Lithuania	Kedainiai State Chemical Plant	USAID	United States	Waste Minimization Demonstration Project
Lithuania	Biochemical Plant - Kedainiai	USAID	United States	Environmental/Waste Minimization Assessment
Lithuania	Grikishkes Pulp and Paper	EBRD/NIB	Finland	Environmental Audit
Lithuania	Synthetic Fibre Plant - Kaunas	USAID	United States	Environmental/Waste Minimization Assessment
Lithuania	Klaipeda Pulp and Paper	EBRD/NIB	Finland	Environmental Audit

Table 8 - Initial Activities at Priority Industrial Facilities/Areas				
Country	Plant	Executing Agency	Source of Funds	Type of Activity
Poland	Swiecie Pulp and Paper	Min. of Environment of Finland	Finland	Environment Improvement Project
Poland	Organika-Zachem - Bydgoszcz	USAID	United States	Waste Mimization Demonstration Project
Poland	Alwemia Chemical - Krakow	Min. of Environment/Min. of Industry	World Bank	Industrial Efficiency and Environment Review
Poland	Kabel Krakow - Cable manufacture - Krakow	Min. of Environment/Min. of Industry	World Bank	Industrial Efficiency and Environment Review
Poland	Walcownia Czechowice Rolling Mills - Krakow and Katowice	Min. of Environment/Min. of Industry	World Bank	Industrial Efficiency and Environment Review
Poland	Chorzow Fertilizer - Katowice	Min. of Environment/Min. of Industry	World Bank	Industrial Efficiency and Environment Review
Poland	Jadwiga Coking - Zabrze-Katowice	Min. of Environment/Min. of Industry	World Bank	Industrial Efficiency and Environment Review
Poland	Organika-Azot Fertilizer - Jaworzno-Katowice	Min. of Environment/Min. of Industry	World Bank	Industrial Efficiency and Environment Review
Poland	Orzel Bialy Coal Mine - Katowice	Min. of Environment/Min. of Industry	World Bank	Industrial Efficiency and Environment Review
Poland	Piast KWK Coal Mine - Katowice	Min. of Environment/Min. of Industry	World Bank	Industrial Efficiency and Environment Review
Poland	Przyjazn Coking - Dabrowa Gorn, Katowice	Min. of Environment/Min. of Industry	World Bank	Industrial Efficiency and Environment Review
Poland	Siersza Power Plant - Katowice	Min. of Environment/Min. of Industry	World Bank	Industrial Efficiency and Environment Review
Poland	Koksownia Zdzeszowice Coke - Katowice	USAID	United states	Environmental/Waste Minimization Assessment
Poland	Kopalnia Krupinski Coal Mine - Katowice	USAID	United States	Environmental/Waste Minimization Assessment
Poland	Kopalnia Wujek Coal Mine - Katowice	USAID	United States	Environmental/Waste Minimization Assessment
Poland	Various Locations in Katowice Region	Polish Engineers Association	Norway	Industrial Audits under Training Programme
Poland	Various Locations in Katowice, Krakow and Legnica Regions	Min. of Environment/Min. of Industry	World Bank	Industrial Audits under Training Programme
Poland	Zgierz-Boruta Dyestuffs	USAID	United States	Environmental/Waste Minimization Assessment
Poland	Oswiecim-ZCHO Chemical	USAID	United States	Waste Minimization Demonstration Project
Poland	Zaklady Azotowe Kedzierzyn - Chemical - Upper Oder/Odra	USAID	Unites States	Environmental/Waste Minimization Assessment

Table 8 - Initial Activities at Priority Industrial Facilities/Arms				
Country	Plant	Executing Agency	Source of Funds	Type of Activity
Poland	Blachownia Kedzierzyn - Metals - Upper Oder/Odra	USAID	United States	Environmental/Waste Minimization Assessment
Poland	Legnica Smelter (Copper)	Min. of Environment/ Min. of Industry	World Bank	Industrial Efficiency and Environment Review
Poland	Silesia Foundry - Katowice	Min. of Environment/ Min. of Industry	World Bank	Industrial Efficiency and Environment Review
Czech Republic/ Poland	Project Silesia - Comparative Risk Study - Ostrava-Katowice Region	Czech, Polish and USEPA Project Teams	United States	Regional Environmental Risk Assessment and Management Plan

Pulp and Paper Sector Review. One of the major ongoing programmes of project preparation in the region is the review and assessment of the pulp and paper sector in the Kaliningrad, Karelia and St. Petersburg regions of Russia, and in Estonia, Latvia, and Lithuania. There are about 34 pulp and paper mills in this region (of which 15 are non-integrated paper mills only). Nine of these mills were identified as “hot spots” in the Programme and three were designated as priority sites.

Since solving environmental problems in this sector is intimately related to the commercial future of the industry, a region wide sector assessment was initiated before undertaking specific site audits and pre-feasibility studies. The sector assessment is intended to establish the current condition of the enterprises in the sector, investigate their current corporate structure, cost competitiveness, and markets, and compare these with regional and world conditions in order to identify the future potential of the industry, and identify where and in what form follow-up activities should be focused.

The sector assessment included case study investigations at several specific mills. The case studies involve a preliminary environmental audit of the site, and an assessment of the corporate structure, business history, production characteristics, markets, and cost structure of the mill. The aim is to identify a number of mills which offer promise for successful privatization and restructuring and integrated investment in environmental management and production technology.

The “polluter pays principle” forms one of the cornerstones of environmental policy in the Baltic Region, and as a consequence one should expect the required pollution control measures to be taken by the management of individual mills. The newer mills located in Karelia and St. Petersburg, have installed sufficient capacity for wastewater treatment but lack adequate air pollution control equipment. The others lack adequate water and air pollution treatment facilities, and use excessive amounts of energy and water in their production processes.

The older mills, particularly those in Estonia, Latvia, Lithuania, and the Kaliningrad region of Russia are in need of new investment in production technology and capacity as well as environmental management. The sector study has shown that there is acceptance on the part of management of the need to limit emissions and control environmental impacts, and appreciation of the principles outlined earlier. However, the management of these enterprises are having considerable difficulty mobilizing the needed investments. An important reason for this is the general lack of capacity to develop business plans to a standard required by Western investors

including the banks and international organizations. Mill managers need assistance in environmental and business planning, in the development of viable proposals to western investors and banks, and in negotiating arrangements. In addition, the small and medium mills may need to form an association or jointly owned company through which they can develop effective marketing skills and acquire market intelligence.

Environmental Audits and Waste Minimization Programmes. As noted in Table 8, a significant number of industrial audits and waste minimization programmes are being conducted at priority industrial plants or in priority industrial districts. These independently prepared audits provide a basis for the preparation of phased low-cost programmes for environmental improvement in industrial facilities, including the pre-treatment of industrial wastewaters prior to discharge into combined municipal and industrial wastewater systems. These activities are complemented by waste minimization demonstration projects that include the design, implementation and evaluation of in-plant programmes to minimize the generation of wastes at source. Once evaluated, these demonstration programs can be fully implemented within the cooperating plant or at similar facilities elsewhere in the region and they also provide important opportunities for “hands-on” training.

The approach adopted in the development and implementation of these demonstration programmes funded by Finland, Norway, United States and the World Bank has focused on the collaborative preparation of studies to ensure the transfer of skills to local experts from industrial enterprises, consulting organizations, academic institutions and environmental regulatory organizations. These types of activities are important for the development of an implementable series of projects at industrial facilities as they provide a technical basis for practical interventions in existing plants and avoid the risk of moving ahead too fast in major investments given the extremely uncertain future of the industrial sector in the formerly centrally planned countries of the region.

3.6 NON-POINT SOURCE POLLUTION

Non-point source pollution from agriculture, livestock operations and rural settlements is the major source of the present nutrient load on the Baltic Sea. The presently on-going or planned studies to address these issues are shown in Table 9. Despite the difficult and time-consuming nature of this component of the Programme, it should be a high-priority use of funds because of the likely high impact on the long-term ecological condition of the Sea. A number of studies and demonstration projects have been initiated or are planned in order to develop detailed recommendations for policy and legislative changes, identify and demonstrate technical interventions, and carry out applied research that will be necessary to reduce runoff and examine issues related to large scale livestock operations. Several of these studies focus on technical assistance and evaluation of investment needs.

An important need under the Programme will be to expand the number and scope of demonstration and extension-oriented activities to include representative areas in all major drainage basins in order to provide the basis for a coordinated regional effort to address this issue. It should be noted that the highly uncertain future of large scale livestock operations in the region, especially in Estonia, Latvia and Lithuania, has slowed activities to examine the feasibility of either demonstration or commercial projects to effectively manage these wastes.

Recently, a feasibility study was initiated for a major pig farm in the St. Petersburg region, one of a group of six similar operations that are a significant source of pollution to the Gulf of Finland.

Table 9- Ongoing Studies of Agricultural Runoff and Livestock Operations					
Country	Area	Executing Agency	Amount (ECU)	Source of Funds	Scheduled Completion
Russia	St. Petersburg Region (large livestock operation)	NIB	60'000	Finland	December 1993
Estonia Latvia Lithuania	Regional/National	NIB	240'000	Sweden	April 1993
Estonia Latvia Lithuania Poland	Studies on Eco-technics in Small Catchment Areas	CCB	30'000	CCB Sweden (SIDA)	1994
Estonia	National - Protection of Groundwater from Agricultural Pollution	Denmark (NEPA)	250'000	Denmark	TBD ¹
Lithuania	Nemanus (Minija River Basin)	Denmark (NEPA)	TBD	Denmark	TBD
Lithuania	National	USEPA	TBD	Lithuania/ United States	TBD
Poland	Vistula River Basin	Min. of Environment, Poland	1'000'000	UNEP The Netherlands Poland	August 1994
Poland	Lower Vistula River Basin Lower Oder/Odra River Basin	Poland/ USEPA	1'500'000	Poland/ United States	Initial Phase of Long-Term Programme

1 To be determined

3.7 COASTAL LAGOON AND WETLAND MANAGEMENT

An innovative element of the Programme is the inclusion of activities for the management of the hydrologically, ecologically and economically significant system of major coastal lagoons and wetlands in the Baltic Sea catchment area. On-going and planned activities are summarized in Table 10.

The World Wide Fund for Nature (WWF) has taken a leadership role in the development of a technical basis for the preparation of management plans and their implementation. This has taken the form of establishing an international network of cooperating national organizations, and undertaking collaborative activities on the ground. Central to the success of this element of the Programme will be the mobilization of local and foreign funds to prepare the required management plans and demonstration projects, and obtaining a local commitment for their implementation. These activities will require a long lead-time for development because of the

need in some cases for applied research, and socially acceptable plans will be complicated not only by economic trade-offs but also issues related to the management of land and water use.

The WWF is presently implementing a demonstration project in Matsalu Bay in Estonia which is one of the high priority “hot spots” in the Programme. It has also prepared a proposal for the initial phase of a regional programme for coastal lagoons which would involve the preparation of inventories, analysis of trends, preparation of preliminary management plans, and design of three pilot/demonstration projects (central Matsalu Bay, Estonia; north coast of Latvia; and Putsk Bay a subsection of Gdansk Bay, Poland). The University of Klaipeda in Lithuania, working with the European Union for Coastal Conservation (EUCC) has also begun to examine what actions would be required for a management programme for the Kursiu Lagoon, which is shared between Lithuania and the Kaliningrad Oblast of Russia, and has expressed interest in collaboration with WWF.

Table 10 - Ongoing and Planned Activities on Coastal Lagoons and Wetlands					
country	Area	Executing Agency	Amount (ECU)	Source of Funds	Scheduled Completion
Regional Coastal Lagoon Programme (initial phase)	Regional Survey (3 pilot areas)	WWF (International)	312'000	TBD ¹	1994 First step
Baltic Sea Region	Conservation and Development in the Baltic Sea Region	WWF (International)	97'000	WWF	July 1995
Estonia	Matsalu Bay	Estonian Fund for Nature (ELF)	21'000	WWF	TBD
Estonia	Nature Conservation Plan	Estonian Fund for Nature (ELF)	17'000	WWF	1994
Estonia	Wetlands Inventory	Estonian Fund for Nature (ELF)	60'000	TBD	1996
Latvia	Nature Conservation Plan	WWF	23'000	WWF	recently completed
Lithuania	Survey & Protection of Coastal & Inland Areas	Lithuanian Fund for Nature (LGF)	40'000	WWF	1994
Lithuania	Mapping of Hard Bottom Areas	Lithuanian Fund for Nature	17'000	WWF Sweden (SIDA)	1993
Poland	Slupsk Bank Study	WWF/Eco Baltic Foundation & CCB Baltic Secretariat/Poland	17'000 (14'000)	WWF Sweden (SIDA) CCB	1993 (1994)
Poland	Management Plan for Putsk Bay	WWF/Eco Baltic Foundation & CCB Baltic Secretariat/Poland	34'000	WWF	1994
Poland	Biebrza Valley National Park (Vistula Watershed)	WWF (International)	45'000	WWF	June 1993
Poland	Green Lungs of Poland - Promotion of Ecological Agriculture	WWF (International)	40'000	WWF	June 1993
Germany/ Poland	Lower Oder/Odra Valley Trans-boundary National Park Management Plan	WWF (International)	28 '000	WWF	June 1993

¹ To be determined

Chapter 4

CONSTRAINTS TO PROGRAMME IMPLEMENTATION

4.1 INTRODUCTION

This chapter reviews the major constraints to swift realization of the Programme. The aim is to identify ways in which new and increased financial resources can be attracted to the region, mobilized, and focused on the most important issues and problems to enable significant progress on priority elements of the Programme.

It is desirable both from an economic as well as practical point of view that Programme investments be financed with local resources as far as possible. While many would express the view that the availability or quantity of funds, both local and foreign, is the main if not the only stumbling block, recent experience demonstrates clearly that there are a constellation of factors that limit the mobilization, flow, and suitability of funds, and the capacity to effectively utilize them. Nearly every one of these factors or constraints is influenced directly or indirectly by the great economic and financial changes taking place in the formerly centrally planned economies of the region, and by the increasing competition for resources in the Western countries caused by recession and persistently slow growth that limits the availability of financial assistance and private investment for environmental improvements.

Two important features of the economic transition underway are tight budget restrictions on public spending, and **decentralization** of authority to local levels. An important consequence of these changes is that new sources of environmental financing are needed to replace traditional mechanisms (local budget resources and central government budget transfers). The availability of resources for ministries and agencies responsible for many of the initiatives called for in the Programme has also been reduced. The environment also suffers from keen competition for these scarce budget resources from other sectors. Efforts to shift the burden from the public budget by implementing the “polluter pays principle” and introducing user charges is hindered by the severe disruptions and instability being experienced in these economies. The water and wastewater sector is one of the few environmental areas with an existing and traditional, though currently inadequate, local revenue base that could form the cornerstone of a long term financing strategy.

Given the almost total lack of long term domestic credit on terms that are suitable for infrastructure and industrial financing, it is no wonder that municipalities, industrial enterprises, and water companies seeking investment finance and other types of funds for environmental projects have turned to foreign sources to meet their resource needs. Grant funds available from sources which do not have to be repaid, though not insubstantial, are very small in comparison to total capital needs (about 5 billion ECU in Tables 2-5). The commercial banks and international financial institutions have substantial funds in the form of loans that could over the long term reach this order of magnitude, but very little of these potential funds are actually available because in many cases, credit risks at the project and country level are judged to be too high to accept. Moreover, not only are municipal and environmental projects in general not earners of the foreign exchange needed to repay these loans, but these countries are reluctant and in some cases unable to increase significantly their foreign indebtedness for environmental improvements. Foreign indebtedness, like domestic budget resources has, under the present

circumstances of low exports and low foreign exchange reserves, to be carefully controlled and allocated for expenditures of the highest priorities.

In spite of these difficulties, it is the premise of this paper that these constraints can be gradually overcome by putting greater emphasis on mobilizing local resources for project capital and recurrent cost financing, and by combining these increased local resources with new and different types and forms of financial resources from external sources to implement in a phased manner a limited number of priority projects and activities. We may expect to accelerate this process as the transition economies stabilize and begin to grow. The discussion below focuses on key factors and constraints that when overcome create conditions that will not only help attract increased resources but also suggest important ways in which financial resources can be mobilized and utilized to accelerate this process.

4.2 PROJECT PREPARATION

The process of implementing the Programme is driven by the existence of plans that set out clear priorities at the national and local levels in each of the concerned countries, and by the preparation of the projects that constitute implementation of those plans. To the extent that there do not exist adequate national plans with identified projects and priorities, the process of mobilizing resources and programming these resources to support selected projects by the bilateral donors, commercial banks, and international financial institutions is greatly slowed by the necessity to support and carry out these preliminary activities. The less clarity there is about what investments are specifically needed and what benefit they are likely to have for human health, ecological values, and the economy, the more difficult it is to mobilize external funds and create programmes through which resources can be delivered where they are needed.

This process is further lengthened when properly planned and supervised comprehensive feasibility studies have not been carried out or have not been coordinated closely with potential financing organizations to ensure that the study has been done to an appropriate standard, consistent with their project development and financing requirements. As one can see from the detailed discussion of municipal water management issues in this chapter, and as further elaborated in Attachment A, what appears in the Programme as an apparently technically simple project to construct a wastewater treatment plant is actually often a complex, phased, multi-year *programme* of investment, institutional restructuring, and organizational strengthening. Interventions in other critical parts of water and wastewater systems are commonly required. If the criteria of affordability and financial viability are considered more rigorously than has been the case in the past, the investments in the treatment plant will have to be phased or stretched out over a longer period of time. Other similar complex issues requiring very serious attention exist in the development, financing and implementation of environmental improvements for industrial enterprises, control of livestock wastes and the management of coastal lagoons and wetlands.

Project preparation is the first point on the critical path. Innovation in the mobilization and use of resources to address the issues discussed below would therefore be vital for progress on implementation of the Programme.

Project Viability. Environmental projects are commonly not financially viable although technically and economically feasible, as they often do not have a sufficient cash flow to provide adequate debt service coverage and provide for normal recurrent costs. For this and other reasons, the state has traditionally provided direct loans or grants for project financing in many cases backed by state loans from foreign sources. In any case, the central issue of

environmental project preparation is a search for a feasible, affordable, and least-cost phased project, for which one can demonstrate a reliable and secure cash flow, sufficient for the project capital and recurrent cost needs over time. In the long-term, revenues based on user charges and tariffs would be expected to be the primary sources of these funds, but present charges are so low that increases will have to be made gradually.

Identification of the Borrower/Implementor and Assessment of the Institutional Framework. In many of the project preparation efforts carried out to date, including many supported by donors and carried out by their consultants, the primary emphasis generally has been placed on the technical aspects of the project with too little attention given to the institutional and management framework. Every project must have a specific entity or sponsor who will take responsibility for execution and financing of the project, and this sponsor and its authority and responsibility in relation to the project, particularly for raising revenues to support the project, must be clearly defined at the outset of project consideration and preparation. The borrower and the implementor are the focal point for assessing most of the risk associated with the types of projects that make up the Programme portfolio. They also serve as the local party responsible for the project during the lengthy process of project implementation and in many cases in the operation and maintenance of the infrastructure and industrial investments.

Focus of Feasibility Studies. Project feasibility studies should address the need for the project, the selection of appropriate technology, determine the costs and related procedures for implementation accurately, and demonstrate that the project is economically justified, and institutionally and financially feasible. Two important problems are evident from recent experience in the region. First, there is the need for a common agreement on what constitutes an adequate feasibility study. The lack of a common framework has resulted in problems between all parties concerned with the objectives of the Programme. A common approach would provide a good framework for feasibility studies which can be readily adapted to each case if there is adequate and early consultation with the financial institutions. Second, there is a lack of capacity on the part of most project sponsors to carry out the required studies. In many cases the problem is mainly a lack of experience with Western concepts and approaches to the preparation of feasibility studies. Often there are significant problems due to a failure to examine alternative or complementary approaches to the proposed project and to comprehensively examine the issues related to a project. For example, studies have been prepared which only evaluate a proposed wastewater treatment plant without analysis of actions which could be taken to reduce wastewater flows in order to allow for a reduced size, or to examine needs for industrial pre-treatment and its implications to project cost, system operation, and sludge management.

4.3 MUNICIPAL ENVIRONMENTAL SERVICES

One of the great changes taking place in the formerly centrally planned economies in the Baltic Sea catchment area is the transfer of responsibility for the development and delivery of environmental management services particularly water and wastewater services to the municipal and local government levels. While the municipalities have always had a significant role in shaping and directing the delivery of water services, the most significant changes involve the transfer of assets including the water company or enterprise, and the transfer of expenditure responsibility. Under the former system, investment costs, and often a large share of operation and maintenance costs, for water services were financed by budget transfers principally from the central government, and water tariffs were far below real costs and set and controlled by central authorities.

The uncertainties that are quite naturally arising during the ongoing transition are making it very difficult to mobilize financial resources for needed investment in the improvement and expansion of these vital services. The problem is not just one of credit risk, though this is also important, but is mainly the lack of a strategy and specific legal and policy framework for how the municipalities will manage these services, and hence, specific knowledge of the types and amounts of funds that are needed and can be absorbed or accommodated and for which purposes.

The major issue confronting the municipalities is the choice of a management framework for water services. Evaluating and choosing the most appropriate option is strongly influenced by their perception of and their response to the key issues outlined below.

The Management Framework. The arrangement between the municipality and the operator of the water system must be clear and comprehensive and set out in a legal document or contract, regardless whether the chosen option involves a public enterprise like a utility, or a lease or concession to a public/private joint venture company or to a private company. This agreement should indicate how matters vital to the function and performance of the water system will be decided and what the responsibilities of the various parties will be. Important issues to be included are, the manner in which tariffs would be set, the handling of escrow accounts (money set aside for specific purposes) for debt service, the uses to which assets and revenue can be put, by whom and how shall standards of service be established, who is responsible for investment and how will investment decisions be made, and the ownership, disposition, and use of assets. This agreement has long term implications for the financial health as well as the performance of the system. While the need for “technical assistance” on what are essentially engineering issues such as the selection of technology and plant design, is well **recognized** and perhaps over-emphasized, the need for neutral advice and assistance in selecting a management option, establishing this management framework including its legal aspects, and making many of the planning decisions is often the most overlooked element of project development in this sector.

The Status and Condition of Water Services. An important factor to consider in the evaluation of different management options is how well a particular option responds to the particular conditions or problems to be faced by the water system operator. Not only does this depend on the current state and function of key components and facilities in the system, and hence on the nature of improvements and investments to be made (e.g., contrast the requirements for construction of a specific plant, rehabilitation of the network throughout a large urban area, or changes in operating procedures and practices), but also on the objective the municipality establishes for water services. Every municipality will have several objectives and an important decision involves the priority and balance assigned to each of these objectives. For example, consider the following three objectives very typical of the current situation in the Baltic Sea catchment area.

- **Reduce the cost of service** - This implies that energy and material costs will have to be reduced probably by carrying out long range programmes to replace inefficient equipment, modernize equipment and control systems, and reduce water losses and water consumption. These programmes would put a premium on an option that could effectively deliver management skills and transfer technology.
- **Improve the standard of service** - Improvements might be needed in at least four areas: water quality, reliability, pressure, and volume. If this were the main objective it would call for a management framework that

could deliver investment and timely construction as well as management skills and new technology.

- **Expand service** - This is the objective most closely related to the Programme in the case where the specific objective is to improve and/or expand wastewater treatment services. These are major investments that require skilled operation, Hence if this were the priority, the management framework that is best able to manage the construction and start-up of a major project, and possibly help mobilize financing, would be the most suitable option.

These objectives are not unrelated to each other, and the choice of priority and emphasis to be given to each is not independent of other issues such as the need to raise tariffs (in return for which customers will want better service), or the need to finance investment (for which water tariffs must be increased and operating costs must be reduced in order to increase net revenues to raise capital or to provide debt service coverage).

The problem faced by all cities of the Baltic Sea region is that some emphasis must be given to and progress made on all these objectives. This important conclusion should be reflected in the formulation of each municipality's first environmental investment project and in its proposed financial structure.

Measures to Increase Cost Recovery and Rationalize Water Consumption. Among all sources of funds the one the municipality is in the best position to influence is revenue from the sale of water and wastewater services. Assuring adequate tariffs and revenues is the cornerstone of achieving financial self-sufficiency for water services. Such a strategy is also the cornerstone for lowering water consumption and increasing water conservation. To varying degrees these measures require the city to structure water services as a commercial service rather than a social service. In this regard two issues are important:

- **meters** - The move to more realistic and higher tariffs will require that each customer's consumption be measured accurately, and that each customer be able to monitor consumption and respond to the increased prices accordingly (municipal water services are a natural monopoly and the only market-like response to higher prices available to the consumer is to reduce consumption). Given the very limited coverage by meters today, a very expensive long term investment programme will be needed to install meters and make the necessary modifications to buildings, service lines, and water fixtures. Just as with renovation and modernization of existing facilities, this long-term investment programme cannot be considered separately from investment in expanded wastewater treatment services if the water enterprise is to remain financially sound; and
- **financial management** - An important aspect of **commercialization** of water services is the requirement for good record keeping, for accurate and timely billing for services, and for efficient collection of amounts due. The adaptation and development of this type of modern management system is a major task since these systems were generally unused and unnecessary in the former system. Much the same comment could be made for accounting cost control systems, and for financial planning in existing water enterprises.

Regulatory Arrangements. Water, like most urban services contains elements of natural monopolies that require regulation to ensure that enterprises establish efficient prices, that operations are efficient, and that acceptable standards of service are maintained. The municipality also needs a mechanism to monitor performance of the water system and insure compliance with agreements on investment and standards of service. Although consumers can respond to prices and the quality of service by changing their pattern of consumption (assuming the improvements in metering outlined above are in place) most elements of a true market in water services are absent and consumers will want the municipal authorities to regulate the water enterprise on their behalf. A much overlooked aspect of the regulatory function is the need for it to ensure that the water enterprise is financially sound and able to mobilize sources of equity and debt financing outside the public sector.

4.4 INDUSTRIAL ENTERPRISES

As noted in Chapter 2, industrial pollution does not represent a major part of the Programme in terms of the number of “hot spots” nor the level of investment required (with the exception of the energy complex in Narva, Estonia). The reason for this is that a large proportion of industry in the region discharges its liquid waste directly into municipal sewer systems. Locally, individual plants and sites can assume particular importance because of the type of load or its proximity to environmentally sensitive areas. For example, the biological load from a single pulp mill in the City of Tallinn, Estonia has represented about one-third of the total daily design biological load to the planned treatment plant but less than ten percent of the total wastewater flow. Since the design capacity, cost and reliability in operation of the costly second stage biological treatment plant is much more sensitive to load than to total flow, the industrial load has a major impact on the future investment needs and operating costs of the municipal water company.

Privatization. Mobilizing investment funds for industrial pollution control depends on the pace and success of privatization and the restructuring of industry. The lack of clarity regarding ownership (as state owned enterprises they are unlikely to be attractive investments), and the unknown competitiveness, financial viability, and markets of the enterprise are the two most important constraints to solving individual industrial pollution problems. The least-cost approach to these environmental problems would be to integrate environmental management investments into investments in the restructuring and modernization of the production processes in order to eliminate wastes and reduce investment needs for environmental management. More proactive programmes are needed to analyze environmental issues at individual enterprises and formulate integrated investment programmes as outlined above, but such programmes might soon be frustrated by the lack of financing if the fundamental privatization issues are not promptly dealt with.

Environmental Liability and Environmental Regulations. Attracting foreign investment to the industrial sector is currently seriously constrained by the lack of clarity about the level of responsibility to be taken by foreign investors for environmental liabilities, both known and unknown, stemming directly and indirectly from the operations of the industrial enterprise prior to making the investment. This constraint is compounded by the often uncertain status of environmental laws, regulations and administrative procedures which influence the evaluation of economic and financial viability of a proposed investment over both the short and long-term. Further, environmental procedures related to preparation of environmental assessments, obtaining environmental permits and licenses often remain unclear to outside parties. Therefore, measures to allow for the resolution of environmental liability and adoption

of clear environmental standards and procedures should be a priority to increase foreign investment in industry.

Inadequate Economic Incentives. The use of economic incentives in the form of fees and fines, when combined with effective regulation and enforcement actions, has been an important tool in the management of industrial wastes of all types in Western countries. Generally, similar approaches have been adopted in the formerly centrally planned economies of the region; however, due to a variety of reasons these programs for economic incentives have had limited impact. This is especially true under present economic conditions when enterprises have extremely limited access to funds and frequently petition or refuse to pay fees and fines out of economic necessity. In many instances, the reluctance of an industrial enterprise to take adequate measures and/or investments to address environmental pollution has been at least in part due to the lack of adequate economic incentives, non-collection of environmental fees and especially fines, and a lack of enforcement action by regulatory authorities. Continued efforts to address this problem through policy and regulatory reform, and strengthening the enforcement capacity of environmental regulatory organizations, will be required to increase the interest and commitment of many industrial enterprises to address environmental concerns under present economic conditions.

Industrial Pre-treatment. Under the former system, industries connected to the municipal sewer system had to have a permit which specified the type and degree of pre-treatment of their wastewaters that would be required. These industries were often charged a much higher rate for wastewater services, and in some cases special cost sharing arrangements for construction of wastewater treatment plants were negotiated. This attractive system has largely been ineffective because of the lack of effective monitoring systems, and the lack of sanctions and other incentives for industry to comply. In addition, under present economic circumstances, most industrial enterprises can no longer honor their commitments for co-financing of combined municipal and industrial wastewater treatment plants. Keeping non-viable industrial enterprises open for social reasons only exacerbates this problem. Since there is no scope to mobilize other sources of funds to treat or manage the wastes from these enterprises, this policy diverts scarce public resources away from other, higher priority environmental needs.

Access to Environmental Advisory Support. Given the highly constrained resources of industrial enterprises in the concerned countries, they are experiencing difficulty in implementing needed improvements in environmental performance which are mandated under law, necessary for the effective operation of treatment systems and to arrest deleterious effects on the ecology of the Baltic Sea. Under these conditions, especially in regard to pre-treatment and disposal of wastes, actions taken by enterprises should be selected which focus on waste minimization, least-cost investments, and include proper training for operation and maintenance. To ensure this objective, industrial enterprises should retain independent experts to conduct evaluations of their facilities which include the analysis of alternative means of addressing their needs.

Experts supported by Finland, Norway, United States, and the World Bank among others, have cooperatively conducted a number of independent environmental audits of industrial facilities, especially in Poland, which should be given consideration for phased implementation on a case-by-case basis with respect to: environmental impact in the local, national and regional context; ownership status; and economic viability under market conditions. These actions are intended to support application of the Best Available Practice principle under the current conditions of economic constraint. Consistent with the 1992 Helsinki Convention and with HELCOM

recommendations, Best Available Technology should be adopted in major new industrial investments.

Independence of Advice on Investments. A related constraint to addressing environmental problems in industry experienced in many cases by financial institutions is the frequent tendency of industrial enterprises to take advice on proposed investment decisions from parties who have a clear commercial “conflict of interest.” This often results in proposals which do not reflect least cost solutions, an excessive emphasis on the procurement of new systems and preparation of technical documents unsuitable for competitive procurement under the procedures of bilateral donors or international financial institutions. The need for **specialized** independent advisory services is especially important for small and medium scale industries, an expanding sector in many countries, which presently have inadequate access to proper technical assistance on environmental issues.

Management and Marketing Issues. The problem of environmental investments in industrial enterprises needs to be viewed in the larger context of industrial investment. Among the broader issues constraining investment in industrial enterprises are:

- **corporate structure** - many enterprises have unprofitable machines and lines that should be closed or renovated for use in the production of new products;
- **product quality** - product quality is not presently sufficient for export markets;
- **financial capacity** - the present capital structure of many enterprises is inadequate to finance substantial investment; revenues are also constrained by low domestic prices, and exchange rate instability greatly increases the risk of higher foreign exchange costs;
- **business planning** - managers of most industrial enterprises in the formerly centrally planned economies of the Baltic Sea catchment area need assistance in environmental and business planning, in the development of viable proposals to international investors and banks, and in negotiating arrangements; and
- **marketing and management skills** - although many enterprises in the region have small scale exports, they generally lack knowledge of international markets and marketing skill to expand exports rapidly to finance investment; management must likewise develop modern business management skill to control costs and plan for the future.

4.5 NON-POINT SOURCE POLLUTION

Constraints to addressing the environmental issues associated with the management of non-point source pollution from agriculture, livestock operations and rural settlements are the most complex within the Programme and will require the longest time period to fully address. Several of the key constraints are discussed below.

Environmental Concerns are Not Currently Integrated with Agricultural Policies. The formerly centrally planned countries of the Baltic Sea catchment area have not traditionally

had agricultural development policies which integrated environmental concerns. Rather, their policies focused on production, often at the expense of the sustainable use of land, water and biological resources. These countries are now in the process of revising these policies, and measures should be taken to support the gradual integration of environmental concerns into the new policies. This is especially critical with regard to policies concerning the long-term structure of agriculture, use of agricultural inputs (fertilizers and pesticides), selection of crop types, provision of incentives and subsidies for livestock operations, and support for agricultural drainage programs. It is important to **recognize** that while under present economic conditions the inputs of fertilizers and pesticides have dropped significantly in these countries, policy measures should nevertheless be taken to avoid a resurgence of problems in the future under improved economic conditions.

Uncertainty Over Future Structure of Agriculture. The recent political and economic changes have created a situation in which it is extremely difficult for all parties concerned to adequately forecast what the future structure of agriculture will be in the countries of the southern and eastern portion of the Baltic Sea catchment area. The Czech Republic and Poland are in the process of attempting to adjust their agriculture in response to changes in internal demands, a reduction in demands for their products in traditional markets, impacts from the import of foreign agricultural products as the result of new trade practices, and assessment of new markets in Europe stemming from their recent agreements with the Commission of the European Communities and various new bilateral agreements. In the successor states to the former Soviet Union, the system of **specialized** agriculture which was based on internal markets and large-scale movements of production inputs has ceased to effectively function under new political and economic conditions. These conditions result in a situation of uncertainty, where national governments and parties concerned with the agricultural sector are reluctant to undertake major investments to address management of non-point source-pollution and especially investments to address the serious problems associated with livestock operations. As in the industrial sector, the present uncertainty of over the ownership of agricultural enterprises in the successor states of former Soviet Union, including agro-industries and livestock operations, makes local and foreign parties reluctant to make investments of any type.

Inadequate Applied Research, Rural Extension Services and Demonstration Activities. If pollution from sources in the agricultural sector are to be addressed over the long-term, the countries of the southern and eastern portion of the Baltic Sea catchment area require significant support to upgrade and modernize programs for applied research, rural extension and demonstration activities. These interventions should be given priority in order to establish the scientific and human resource base required for interventions of all types in this area. These activities should include but not be limited to: alternative cropping and **tillage** methods, forage improvement, fertilizer application, integrated pest management, alternative approaches to livestock production and management. Establishment of a series of well monitored watersheds where demonstration projects are carried out and linked by a network of cooperating local institutions will provide a necessary means for regional cooperation on this issue. A key aspect of such endeavors would be the inclusion of a wide range of activities to promote the involvement of the rural communities to foster the long-term adoption of best practices.

Design and Maintenance of Facilities and Equipment. A major constraint to preventing and controlling non-point source and point source discharges from rural areas are the outdated designs and poor maintenance of facilities and equipment. This is particularly the case with waste collection and treatment facilities at agro-industries, large scale livestock operations and rural settlements. At the on-farm level, inadequate storage for fertilizers, pesticides, and manure contributes significantly to the run-off problem. This situation is further complicated by problems with the use of agricultural equipment which is poorly suited for the cropping system

and soil types where it is used. A special problem is the shortage of proper manure spreading equipment which has been exacerbated by the decreased availability of fuel due to both shortages and price increases. These problems provide an opportunity for well targeted investments in agricultural equipment production facilities in the future, provision of imported equipment as a short-term measure and projects to improve storage and waste handling at economically viable operations. Measures to improve and/or rehabilitate existing waste management in rural settlements should also be undertaken in areas subject to pollution of water supplies, in order to avoid health impacts, especially to pregnant women, infants and small children.

Limited Experience Under Local Conditions. The bilateral donors and international financial institutions currently active in the area have limited experience in the design, implementation and evaluation of the types of projects needed to address control of this type of pollution under the climatic and soil conditions, cropping systems and livestock production systems found within the eastern and southern portion of the Baltic Sea catchment area. This means that projects should first be developed and implemented on a pilot basis and then replicated in a manner which allows for continuous adjustment based on evaluation findings. This situation mandates that special bilateral efforts from within and outside the region, drawing on the domestic experience in addressing these issues, be developed in cooperation with national governments and funding agencies to focus on the field based evaluation of transfer of experience from countries with similar physical conditions and cropping systems. In the case of large scale livestock operations, it is anticipated that there would be significantly less difficulty in the transfer of experience in waste management and treatment; however, improved use of manure as a fertilizer should also draw on expertise from similar settings. Given that climatic and cropping conditions vary significantly within the basin, extreme caution should be taken in the direct transfer of techniques from one country to another without careful evaluation.

4.6 MANAGEMENT PROGRAMMES FOR COASTAL LAGOONS AND WETLANDS

The Programme recognized the importance of maintaining the ecological condition of the coastal lagoons and wetlands as critical elements in the natural system of self-purification and vital contributors to ecological stability. However, developing and putting in place effective measures and management programmes will be a long term process. Initial effort will have to focus on the problems outlined below.

Limited Understanding of the Importance of These Ecosystems. This element of the Programme is perhaps the least understood in its importance by the cooperating national governments, local governments and the public. These types of environments have been traditionally viewed as sources of insects, waterborne diseases, stagnant water and nuisances for transportation systems. This has allowed for their widespread degradation as informal liquid and solid waste disposal sites and their conversion through draining and filling for agriculture, industry and urban development. Public awareness and education activities need to be undertaken to correct this impression and to convince decision makers and the public that these are valuable ecosystems which require proper conservation and management for local, national and regional benefits.

Lack of Implementable Management Plans. The key constraint at present in implementation of this element of the Programme is the lack of implementable management plans for the priority coastal lagoons and national strategies for the conservation of wetlands in the interior areas of the Baltic Sea catchment area. The management of these environments is complex and requires that plans be developed in close collaboration with a variety of

organizations which may be potentially affected, to ensure their cooperation and understanding. The complexity of preparation is increased by the fact that three of the high priority coastal lagoons are “common resources” to two countries. In order to achieve the objectives of this element, resources need to be mobilized to initiate the process of management plan development.

Need for Grant and Special Financing. Although ecologically significant, the conservation of coastal lagoons and wetlands often requires the use of grants and special sources of financing. Except for the direct benefits to those involved in commercial/sport fishing and providers of services to tourists and other recreational users of these areas, most of the benefits are to society as a whole and hence difficult to raise funds for on a commercial basis. However, it is possible for international financial institutions to provide loan resources for conservation activities such as those under discussion as environmental elements of loans for agricultural development and other sectors. It should be noted that the primary investment cost for management of these areas requires local resources associated with the direct purchase of land, indirect control of land through restrictions on use, and restrictions in some cases on water use. Investments required in these programmes are normally associated with actions to address local liquid and solid waste management issues, creation of infrastructure required for management, fishery and recreational purposes, and establishment of monitoring systems.

Conflicts With Other Land and Water Uses. Due the long tradition of converting wetlands and reallocating the water which sustain them to alternative uses, there frequently are conflicts when attempts are made to conserve these resources. In Estonia, Latvia, Lithuania and Poland, farmers and foresters have strong production oriented incentives to obtain additional agricultural land and better access to forests for harvesting of timber by undertaking drainage improvements which reduce wetland areas incrementally. In Poland, proposals to expand agriculture through supplemental irrigation in seasonally water deficit areas could cause further pressure on **riverain** wetlands and indirectly on the coastal wetlands. Conflicts are expected to become most pronounced in areas adjacent to the coastal lagoons and where wetlands form boundary areas with lakes suitable for recreational purposes.

Changes in Land Ownership. An emerging issue which will perhaps in some areas become the largest constraint to the management of these resources is the process of privatization of state-owned lands and, in the case of some areas in Estonia, Latvia and Lithuania, the restoration of lands to their pre-1940 owners or their heirs. This process creates natural conflicts with the objectives of management plans which by their very nature are designed to limit the types of uses land can be put to within reason. This conflict may become especially acute if significant areas that are presently under protection as parks or reserves are returned to private ownership without an adequate, well understood and effectively monitored and enforced series of land use covenants being included as an element of the land titling and registration system.

4.7 PROJECT FINANCING

Lack of Local Currency Financing Facilities. The availability of local currency for project implementation is perhaps the most overlooked problem of implementing the Programme.

- first, there is a common misconception that most external sources of project finance (e.g., the international financial institutions or bilateral donors) can routinely cover local costs. In fact external financing, except from private sources and commercial banks as well as the European Investment Bank, is commonly limited to foreign exchange costs; local currency cost coverage is normally very small, but the rules vary widely among sources;
- second, projects were traditionally financed by grants made through annual central government budget transfers which resulted in long implementation periods and excessively large and over-designed projects. Rather than focus on timely construction to insure that benefits are obtained early, projects were viewed more as vehicles for resource transfers and employment generation. As a consequence, it is not commonly understood that prior commitments are needed for *all* funds which must be provided during the planned period of project implementation and that projects should be formulated as a planned series of phased construction actions. Moreover, before a project can begin, there must be a reasonable demonstration that operating and maintenance costs can be covered from local resources; and
- third, with a few notable exceptions there are no government (municipal, regional, or central) programmes or facilities, nor capacity within the local financial system, for local currency, long-term capital financing to replace traditional budgetary sources; commonly there is no functioning capital market, particularly one that could provide the types of instruments on appropriate terms to serve the needs of municipal infrastructure investment,

Lack of Capacity in Local Financial Institutions. The capacity of traditional and recently established local financial institutions in the formerly centrally planned economies to participate in the activities of the Programme is constrained by their limited experience in the development and supervision of lending in economies which are in the transition to market economies. While the financial institutions presently play a limited role in municipal and industrial finance, over the medium and long-term implementation phase of the Programme they can be anticipated to play an increasingly important role. Such a role in the short-term could be envisaged for selected recently established institutions, such as the Polish Development Bank, which have received foreign capital in addition to local currency resources. However, in order for these organizations to participate in the Programme, **specialized** support for institutional strengthening and staff development will be required for the evaluation, appraisal and supervision of loans to the municipal and industrial sectors for environmental purposes. This need is especially pronounced in the successor states to the former Soviet Union. While the issue of strengthening local financial institutions goes beyond the scope of the Programme, it should be **recognized** that the development of such capacities is critical for the implementation of the Programme, and needs to be highlighted and addressed through a variety of actions. It is suggested that assistance provided under the Programme be limited to training related directly to types of projects which are included in the Programme.

Risk. In lending, a decisive factor is the lender's credit risk assessment of the borrower. The various forms of risk that may be a factor in a particular case can be grouped into three categories:

- **sovereign risk** which includes physical risk (war, sabotage), expropriation risks and currency risks (foreign exchange availability or price);
- **implementation or pre-completion risks** which are associated with financing, construction, the selected technology, performance of contractors and consultants, and contractual risks; and
- **operating risks** which include demand and price (tariff) risks, the risk that the borrower will not perform (low efficiency and mismanagement), liability, and the risk of natural disaster.

The first category is the so called country risk, while the others are project risks. In the present situation of economic, institutional, and political transition, governments at the central and local levels have a major influence over many of the elements of project level risk. For example, revenues for water and wastewater services will depend on future political considerations to levy tariffs. The debt service burden might heavily depend on the governments exchange rate policies.

The credit risk is reduced in cases where the borrower is in a sufficiently strong economic situation, having assets and incomes to secure debt service requirements. A strong, positive cash flow generated by the enterprise or the investment to be financed, is a further comfort to the lender. But it is evident from the above list that there are several important factors which must be addressed if the risks which underlie these cash flows are to be minimized. These factors need to be addressed in the project feasibility study.

Guarantees. In economies in transition, it is very difficult for a lender to assess and accept political or sovereign risks. As a rule, a lender will ask for state or sovereign guarantees to cover such risks. This applies both to domestic and foreign lenders. For example, domestic commercial banks might require a sovereign guarantee as a prerequisite for lending to municipalities under present circumstances in many of the formerly centrally planned economies in the Baltic Sea catchment area.

Even though the water company or the municipality is the borrower, a sovereign guarantee increases the official indebtedness of the country and the liability will thus show up on at least two balance sheets. However, there are actions that can be taken by a municipality to decrease certain key risks associated with repayment of the debt, although these steps may not lessen the need for a sovereign guarantee in cases where other risks are judged to be too great. Principally these are actions to guarantee that tariffs will be set in the future at levels that will insure sufficient funds to provide the debt service coverage required by the lenders. Secondly, the municipality could guarantee to place a pre-determined portion of gross revenues in a special account controlled in part by the lenders which can only be used for debt service, reserves, and other investment purposes with the approval of the lender.

Chapter 5

RESOURCES AVAILABLE TO IMPLEMENT THE PROGRAMME

5.1 INTRODUCTION

The long-term financing needs for Programme activities in the formerly centrally planned economies will be met from resources generated locally within the countries themselves, from bilateral donors providing grants and concessional funding, from loans provided by multilateral and commercial financial institutions, from private sector investments, and from export credits and guarantees. Special sources of funding such as the Global Environment Facility, debt for environment swaps and eco-funds, and support from foundations and twinning agreements will also play an important role in some aspects of the Programme. The relative proportion of the funds which come from each type of source will vary during the length of the Programme, with the country and sector involved, and from project to project. Many projects will utilize a combination of several sources.

A significant portion of the Programme is being implemented in countries that are in the process of a critical transformation of their economic and political systems; this transformation, at least in the short-term, has resulted in a considerable contraction in their economies and a significant disruption in their usual production and trade patterns. Until these conditions are alleviated through successful economic restructuring, the availability of local financing will be a major concern in the identification, design and implementation of all Programme activities in these countries. The rate at which the presently limited banking and financial sectors can be strengthened and developed will also influence the capacity to mobilize local financing for Programme activities.

Efforts to increase the mobilization of local resources for environmental protection are expected to yield results very gradually because of the effects of the economic transition. Hence, in the short-term, continued and better-coordinated support from bilateral donor organizations is required to implement the Programme, especially to support policy, institutional development and investment project preparation activities. The Commission of the European Communities will also continue to play a major role through its PHARE, TACIS and LIFE programmes as they have the scope to support both national and regional activities. The international financial institutions will continue to provide loans and implement projects for selected priority activities under the Programme consistent with the requests of the borrower and within lending limits established by creditworthiness. Support from special sources of funding may play an important role in many aspects of the Programme in the short-term, especially in the area of management of coastal lagoons and wetlands, applied research, public awareness and environmental education.

It is anticipated that over the medium and long-term the requirements of the formerly centrally planned economies for assistance from bilateral donor organizations will decrease. Meanwhile, the use of loans from international financial institutions, investments from the private sector, and access to export credits and guarantees will increase as their economies are strengthened, risks are reduced, and overall creditworthiness enhanced.

5.2 DOMESTIC RESOURCES

Governments of the formerly centrally planned economies would be expected to play a decisive role in mobilization of resources to implement the Programme. The nature of investment in environmental management and protection is such that a high proportion of expenditure requires only local currency. This would commonly include key elements of projects such as technical services, labor, land, common construction materials and non-specialized types of equipment. Under these conditions, local financial resources should be used wherever possible rather than foreign borrowing in order to avoid pressure on the country's balance of payments. Given the severe strain on public sector expenditures during the current stage of economic restructuring, emphasis should be placed on meeting expenditure requirements from revenues generated at the project level (e.g. municipal water services) before seeking national or international sources of funding.

The principal local sources of funds available to support activities under the Programme include: user charges, pollution fees and fines, budgetary allocations and non-budgetary incentives, domestic loans and, potentially, local private sector investment. Domestic loans may not be a major factor in the near term because local financial mechanisms such as capital markets and banks have not been developed to support environmental improvements and services in the municipal and industrial sectors. Mobilization of local private investment is constrained by historical barriers to private ownership, a limited local banking and financial sector, and inexperience of potential investors with the types of activities included in the Programme.

User charges are those that consumers pay for water and wastewater services. In well-managed and financially self-sufficient water and wastewater utilities, these should be adequate to pay for operations and maintenance costs as well as a significant share of investment and debt service needs. In practice, municipal finances in these countries are under severe strain, and user charges are insufficient for even basic operational costs. Recent efforts in many cities to raise water tariffs are encouraging, but the resulting revenues are barely keeping pace with inflation. As a consequence, many systems face a risk of producing increasingly unsafe water and treating wastewater unreliably (where at least some treatment capacity exists).

Budgetary allocations and non-budgetary incentives from national, regional and municipal authorities will remain an important source of investment funds and means of facilitating project implementation. Budget allocations are also under severe erosion during the process of structural adjustment in the formerly centrally planned economies of the Baltic region. The actual funds available, based on a sample from Estonia, Latvia and Lithuania, are well below ECU 1 per capita. Such a reduced level of budgetary resources is at best sufficient to pay only the costs of the central and regional administration. In a situation of sharpened economic priorities, environmental sector activities often receive a low priority as compared to the need to pay wages in state-owned enterprises, purchase energy supplies, and ensure food production and distribution. This requires that attention be given to evaluation of both the sources and amount of local funds available for the development of activities. The present economic situation argues for delegating the generation of local revenue to autonomous water supply and wastewater utilities rather than municipal, regional, and central state budgets.

During the transition period when these new local institutions are being established, the implementation of critical investments can be greatly facilitated by the government through selected economic and financial incentives which do not involve a direct budget allocation but may have a budgetary impact. These include income tax incentives, conversion of sunk capital into equity and reinvestment of returns on that equity, exemptions from duties and special transaction taxes, and export licenses for tradable commodities, etc. Such incentives will help

to favorably restructure the balance sheet of project authorities including new municipal utilities, and increase the amount of net revenues available for investment and debt service. These two factors together will greatly expand the capacity of the utility or authority to mobilize resources for project financing and implementation.

Pollution fee and fine schemes are used in some countries as a source of funding for environmental management and protection activities with the largest programme being that of the National Fund for Environmental Protection in Poland. These funds are normally shared between the central budget, national and regional environment authorities, and increasingly with municipal or other types of local authorities, consistent with the on-going process of **decentralization**. In some cases, these funds are allotted solely for environmental purposes while in others a portion of the funds is retained for general use in the central or municipal budget. The administration of these funds is through a specialized organization affiliated with the Ministry of Environment and decisions concerning allocations are approved by a board with members representing a variety of national and local interests.

It should be kept in mind when discussing the use of funds generated from pollution fee and fine schemes that the primary purpose of such schemes in general are to reduce environmentally harmful activities. This does not preclude that they also generate income. Earmarking this category for state income for specific purposes (like environmental funds) reduces somewhat the efficiency of the overall budgetary allocation process, but may well be justifiable in a transitional process.

Under the current economic situation in the formerly centrally planned economies, problems frequently occur in collection of fees and with maintaining their real values because of high levels of inflation. In many cases, industrial enterprises pay only a portion of the applicable fees and fines or none at all, or they are granted exemptions because of their difficult financial situation. Some industrial enterprises have not paid fees or fines for a number of years and remain unable to pay their current assessments, let alone those due from past years. Despite these problems, in the short-term, the availability of funds from environmental fees and fines will prove to be an important even if not fully reliable source of local funding for Programme activities.

Pollution fees and fines, especially those retained by municipal or other local authorities, should be used where appropriate to provide local financial support for implementation of priority activities under the Programme. Arrangements for co-financing of activities between existing environmental protection funds and international financial institutions should be considered. Establishment of environmental protection funds should be evaluated for those countries which do not have such a mechanism. Support should also be provided for the strengthening of existing national funds, particularly with regard to project evaluation, financial management and accounting. As the process of economic restructuring proceeds and economies in these countries become more vigorous, the revenue base of environmental protection funds should increase and their role in the Programme expand proportionately.

Local banks, either specialized along **sectoral** lines or general commercial banking institutions, could potentially provide loans for environmental projects. Existing domestic loans are, however, normally only available for terms as short as three months with very high interest rates, which precludes their use for anything other than trade financing. Although the banking and financial sectors are developing in the formerly centrally planned economies, the absence of investment financing is acute. Since environmental investments are long-term and require long-term financing, this means that the domestic banking sectors alone will find it difficult to make a meaningful contribution to the environmental financing needs in the short term. There are

already instances of the creation of joint lines of credit by local and foreign banks, and the provision of loans or lines of credit to local banks from international financial institutions for on-lending to municipalities and industrial enterprises. However, these efforts have met with uneven success because of the need for considerable technical assistance to develop the necessary skills to identify and **analyze** prospective project investments, especially for potential municipal and industrial clients.

Partial or Full State Guarantees. The granting of state guarantees can often facilitate financing of projects through loans from financial institutions and export credits. Such guarantees could be partial or full. Partial state guarantees could be based on a number of conditions to be met before the guarantees became effective. Governments do not have wide latitude in granting such guarantees, however. They may be under restrictions from lenders of official balance-of-payments support as to the amount of guarantees they can extend. The use of guarantees to finance the Programme will have to be weighed against similar demands from other sectors.

Legislative and Policy Reform of the Financial Sector. Programme investments would be facilitated by a well functioning local financial sector. In the short-term, it is clear that the economic situation makes local savings difficult to raise. However, the situation will gradually improve and the legislative base should already be in place. In particular, financial instruments for medium- and long-term investments must be established and gradually developed. Such instruments could include national investment banks that could finance enterprises that manufacture equipment and provide services for the environmental sector; national environment funds to finance environmental projects with loans of varying maturity and concessionality; and commercial banks that might provide at least short term financing for enterprises.

Many of the reforms to enable a domestic financial sector to emerge and strengthen go far beyond the interest of the Programme alone. They include the modernization of commercial legislation in areas such as ownership of property, possibilities to obtain adequate loan securities, and sufficient monitoring of the banking sector. All these reforms require considerable time and will in all likelihood not be fully implemented during the early years of Programme implementation. The use of these financial resources and instruments which in spite of the constraints could be mobilized is further impeded by the inexperience of financial institutions for credit analysis and processing. Training programmes and institutional support would in this context have a relatively rapid effect.

Legislative and Policy Reform in the Environmental Sector. Local resource mobilization could be more effective if environmental sector institutions have a modern legislation and policy framework. The guiding principle for such institutional reform would be the recognition that many environmental services are local in nature and would function better if authority were delegated to the local level. This is particularly applicable to the water and wastewater sector. Experience has shown that wastewater treatment utilities are better able to meet the needs of the community if they are given financial and administrative autonomy. Such autonomy is possible since these services are able to raise financial revenue through adequate metering, billing, and collection for the provision of water supply and wastewater treatment services.

The Baltic Utilities Initiative Workshop, held in **Riga** on February 16-17, 1993 gathered seventy representatives from governments, municipalities and environmental institutions from Estonia, Latvia, Lithuania, Poland, and Russia, and from international financial and sector institutions. The meeting analyzed the historic task of the water and wastewater sector in making the transformation from a poor-quality, high-cost service to a high-quality, low-cost service in

exceedingly difficult macroeconomic circumstances. The meeting adopted “the Riga Statement on Water and Wastewater and the Baltic Sea Environmental Programme” that called for high priority to be given by national governments and external support agencies to supporting the efforts of municipalities to foster the development of autonomous, self-financed water supply and wastewater treatment utilities.

The Riga meeting noted that critical elements in this institutional reform programme would include new legislation enabling this process to move forward; an intensive human resource development programme, especially in the areas of financing and management; the phasing in of more appropriate tariff systems, with particular attention being given to closing, over a period of several years, the wide gap between current domestic tariffs and the cost of services; and least-cost investment programs focusing on rehabilitation, demand management and commercialization.

5.3 EXTERNAL RESOURCES

Due to the present constraints on the availability of local financing and the need for foreign exchange to fund elements of most priority activities, the use of external financial resources will be very important in funding the Programme in the short and medium-term. Given the competing demands for limited external financial resources, particularly during the short-term, it is critical that their use be well planned, properly coordinated, and that available funds be allocated to address priority needs from both a national and regional perspective.

External resources take a variety of forms and are accompanied by various conditions which should be carefully reviewed and considered when deciding on the use of potential funding for different types of Programme activities. The principal types of external financial resources available for implementation of the Programme include the Commission of the European Communities, bilateral donor organizations, international financial institutions, export credit agencies and commercial banks, and direct investment by foreign companies.

Grant and Concessional Assistance. Grant and concessional funding from the Commission of the European Communities (CEC) and bilateral donors, both from within and outside the region, has been in recent years an important source of support for environmental activities. These funding programmes have largely focused on the provision of technical assistance and consultant studies, institutional strengthening and human resources development, and support for the acquisition and installation of monitoring systems and other types of **specialized** environmental equipment. In some cases, funding has been made available for small-scale demonstration projects or support for joint-venture investments in environmental and energy conservation technologies.

- **Commission of the European Communities.** The CEC has served a key role in the G-24 process through its responsibility for coordination of economic assistance to the formerly centrally planned economies, and through technical assistance activities in support of environmental management in all the concerned countries under the PHARE, TACIS and LIFE programmes. The programmes of the CEC require that goods and services, other than those from local sources, be obtained from the CEC member countries consistent with their procurement procedures. Currently, the CEC has the only programmes, other than those of the Global Environment Facility, which can be used to support activities at the regional level.

- **Bilateral donors within the region.** Within the region, bilateral aid for environmental activities has been provided by Denmark, Finland, Germany, Norway and Sweden. These programmes are conducted in the context of periodically updated bilateral agreements between the cooperating countries, which specify the projects which will be supported. Under the terms of most bilateral agreements the cooperating country is expected to provide counterpart local currency funding. In a number of instances, delays in local funding due to budget constraints, have slowed implementation of activities. Grant and concessional financing from bilateral sources is normally conditional on special procurement procedures that tie its use to equipment, consultant services and training from sources within the donor country.
- **Bilateral Donors from Outside the Region.** Bilateral support from donors outside the region for environmental activities has included programmes supported by France, the Netherlands, and the United States. These have been complemented by more specialized bilateral environmental activities funded by Canada, Japan, Italy, Switzerland, and the United Kingdom. Discussions have indicated that the Republic of China may be prepared to consider extending support for environmental activities to Latvia. As in the case of the bilateral donors from within the region, these organizations generally require that purchases of goods and services be made in the donor country, consistent with the procurement procedures of the funding organization.

As Programme implementation proceeds and local institutions are adequately strengthened, human resources developed and feasibility studies prepared, use of CEC and bilateral donor funds should shift in priority, toward more extensive co-financing of investments with national governments, local governments, international financial institutions, and private sector investors. In particular, these funds will be required to address project specific policy, institutional, training, and selected investment activities. Such a funding blend will be important in accelerating implementation of the Programme during the process of economic restructuring in the formerly centrally planned economies.

International Financial Institutions. The cooperating international financial institutions, including the European Bank for Reconstruction and Development, European Investment Bank, Nordic Investment Bank, and the World Bank can finance larger projects and technical assistance directly, and smaller projects through financial intermediaries in the borrowing country. These banks finance a multitude of projects in a wide range of priority sectors; the amounts available for environmental projects thus depend on overall country and sector priorities and borrowing capacity. The level of environmental investment by these international financial institutions is determined by the priorities of the borrowing country, the level of borrowing or indebtedness that present and anticipated economic conditions are able to support, consideration of balance in investment activities between priority sectors, as well as the quality of the investment proposed for loan financing and the related characteristics and conditions of the borrower or project sponsor.

The funds of the international financial institutions are lent at or near market terms, for frequently longer maturity with grace periods, than are available from other sources. Their effective use is contingent upon the willingness of the borrower to agree to service the resulting loans and to provide the state guarantees for repayment that some of these institutions require by their statutes. For example, the charter of European Bank for Reconstruction and Development

does not require state guarantees although they may be required based on credit risk assessment. Loans provided by the international financial institutions are normally restricted to the financing of foreign currency elements of a project; however, certain institutions such as the European Investment Bank are allowed to provide funding for local currency expenditures. All the cooperating international financial institutions require that the procurement of goods and services be consistent with their procedures. The procurement procedures of the European Bank for Reconstruction and Development and the World Bank are based on the principle of international competitive bidding. Firms and suppliers from the countries of the formerly centrally planned economies of the region which are members of these banks, are allowed to compete for contracts for goods and services.

Within the region, the Czech Republic and Poland have requested and obtained support for environmentally oriented projects from the European Bank for Reconstruction and Development, European Investment Bank, Nordic Investment Bank (acting through NEFCO), and the World Bank. These have included to date support for major investments in energy conservation, air pollution control, municipal water and wastewater management and the strengthening of environmental management capacity. This trend is anticipated to expand to the other formerly centrally planned countries of the region over the next several years. It should be recognized that as the international financial institutions provide loans at basically market rates, rather than grants or concessional funding, it is useful to evaluate in any project the opportunities for combining these funds with grant, concessional loans and/or private sector investments to develop a project whose financial structure represents the most favorable terms to the borrower.

Export Credit Agencies. These institutions are a source of shorter term project financing, particularly for **specialized** equipment. Official export credits are guided by the so-called consensus agreement among countries of the Organization for Economic Cooperation and Development (OECD) which, *inter alia*, limits the maturity of export credits to terms of typically 5 to 8.5 years after commissioning of the project. This term is generally too short for public infrastructure investments such as municipal water services because the resulting annual cost of repayment and debt servicing is too high. Hence, their use is mainly confined to commercially viable projects in the industrial sector. On the other hand, in view of the importance of the Programme, consideration could be given by authorities and agencies responsible for credit and guarantee schemes to the development of targeted programmes with longer maturities for priority projects in the Programme.

In line with their policies, and given the risks for lenders in the region demonstrated by the difficulties of servicing the external debt in the successor states to the former Soviet Union and Poland, the export credit agencies have sought guarantees to protect their loans from the export credit guarantee agencies in their own countries. Such export credit guarantees require acceptable counter-guarantees in the form of state or bond guarantees from the recipient countries which, such as in the case of the Russian Federation, have not been forthcoming. The main constraint on the lenders' side is the creditworthiness of the proposed borrower and the recipient countries' willingness to accord sufficiently high priority to environmental projects so as to extend counter-guarantees for the guarantees of the export credit agencies in the lending countries.

The result has been that commercial and official export credit for equipment is not currently an important source of financing for the formerly centrally planned economies, particularly not in the environment sector. However, there are indications that this situation could improve. There now exist within the countries of the Baltic region export guarantee programmes from Denmark, Finland, Germany, Norway, and Sweden for Estonia, Latvia, Lithuania, Poland, and the Russian Federation. Countries from outside the region have also provided export credits and

guarantees. Denmark has a special export guarantee scheme that provides for medium and long term guarantees. Finland has a special guarantee scheme amounting to ECU 450 million for the adjacent region, foremost the Russian Federation. Norway has a special program for Estonia, Latvia, Lithuania and the other successor states to the Soviet Union of about ECU 200 million. Sweden is planning to extend special export credit guarantees amounting to about ECU 100 million for the Estonia, Latvia, Lithuania and the successor states to the Soviet Union.

International Commercial Banks. Direct project financing may be obtained from international commercial banks which, in the case of environmental investments, would require that the project in itself can generate a sufficiently strong cash flow. These Banks have been particularly active in Central and Eastern Europe providing loans for industrial restructuring projects to enterprises that have good management, a substantial market share or potential, and a sound business plan and financial structure.

A number of commercial banks have indicated a potential interest in providing loans for environmental investments subject to strong guarantees by Western governments. In order to successfully provide for the participation of commercial banks in the investment activities of the Programme, it will be necessary to establish a series of effective loan guarantee mechanisms within the principal countries interested in supporting the Programme. In addition, actions will need to be taken, on a proactive basis, to solicit the participation of selected commercial banks in the Programme and to discuss the adoption of measures to address credit risks with representatives of guarantee boards and export credit agencies.

Direct Foreign Investment. In the medium and long-term the participation of private sector investors and specialized development finance institutions will be important for the success of the Programme. The European Bank for Reconstruction and Development, Nordic Environment Finance Corporation (NEFCO), and the International Finance Corporation (IFC) - an affiliate of the World Bank, are able to supply investment and equity capital, possible without requiring state guarantees, for commercially viable projects in the entire Baltic Sea catchment area. In such cases, the viability of the project will also be an essential precondition, in that the equity financiers must feel confident that the project will provide a return on their investment.

Throughout the world local governments, including many in the Baltic region, are turning to the private sector for the management of water supply and wastewater systems. In doing so, they seek efficiency gains in management and operation and in mobilization of private investment capital. They should be encouraged to consider any of the many options of private sector involvement in utility management and operation such as service or lease contract arrangements.

As financial markets develop and utilities become creditworthy, the financing needs of utilities should be satisfied from private sources. The present reliance on subsidies from government or government guaranteed loans from official credit agencies should be discontinued as soon as possible. Even today, attracting private financing for certain investments through "Build-Operate-Transfer" (BOT) schemes or similar arrangements have become viable options.

So far, there have been many attempts by the private sector to get involved. Most of these were initiated by foreign providers of equipment or services. Very few of the initiatives have come to fruition, as the private sector, after an initial energetic push, perceived the risk as too high. Local authorities also shrank away from many of these proposed arrangements, as they turned out to be insupportable by their financial capacity. Fortunately many of these proposals also turned out to be ill conceived "deals" which were not really in the local interest.

While the potential for private sector entry is high, the lack of an established regulatory framework and the inexperience of local authorities in dealing with the private sector has resulted in very little mobilization of private equity resources. It is therefore imperative that the government establish a system of regulations and incentives which allows local arrangements under fair and competitive conditions. For accelerated and efficient sector development, the participation of the private sector in the management and operation of the utility and the provision of finance for investments should be strongly encouraged. Appropriate regulatory structures, however, need to be introduced to ensure that private sector activity develops under equitable conditions beneficial for both local government and the private partner.

5.4 SPECIAL FUNDING SOURCES

Debt for Environment Swaps and Eco-Conversion Programmes. Debt-for-Environment Swaps and Eco-Conversion Programmes have been the focus of much discussion within the Baltic Sea catchment area, due to their ability to convert financial liabilities into resources for environmental activities. These types of arrangements are also attractive as they create possibilities for the use of local currency to leverage foreign currency contributions through cofinancing from bilateral donors, international financial institutions and private finance, complementing funds made available from the "swap." These types of arrangements, by providing counterpart local currency, also reduce the risk of investment decisions being driven by the availability of foreign currencies rather than by country priorities, particularly given the very tight local currency budget constraints existing in the formerly centrally planned economies.

In 1989/1990 the World Wide Fund for Nature (International) organized a demonstration "debt-for-environment swap" in Poland under which a commercial bank participated in a "swap" which resulted in the equivalent in local currency of ECU 42,000 being made available for environmental purposes. These funds were used to support the preparation of the management plan for Biebrza National Park which is an element of the "Green Lungs" programme in the northeastern Vistula River Basin. In addition, Finland has also developed a "debt-swap" agreement with Poland which allows for the use of a portion of the former Finnish official debt for the procurement of goods for environmental improvements and energy conservation from Finnish sources.

In March 1991, a provisional agreement was reached between Poland and the Paris Club, responsible for coordination of "official" or government to government debt, which envisages a 50% reduction of Poland's ECU 27.75 billion equivalent debt obligations to official bilateral creditors. Creditor countries agreed to consider a debt swap facility operated on a voluntary basis, the total amount of which would could represent an additional 10% pre-reduction of Paris Club debt. The Polish Government would use this voluntary facility to implement the "debt-for-environment swap" through an "Eco-Fund."

In this context, the Government of the United States, in agreement with the Government of Poland, converted 10% of its official debt from Poland, equal to about ECU 100 million, to provide the resource base for the Polish Eco-Fund which became operational in late 1992. The United States contribution amount would increase over time in line with the annual debt service profile under the Paris Club. The Eco-Fund would focus its activities to provide additional financial resources to projects which address international and global problems, including transboundary SO₂ and NO_x pollution, pollution of the Baltic Sea, greenhouse gas emissions, and biodiversity and nature protection. Hence, it can be anticipated to become an important party in the funding of priority Programme activities of a variety of types within Poland.

Discussions are underway between the Government of Poland and other countries holding official debt from Poland concerning their possible participation in the fund.

The above examples are important as they provide opportunities for other countries and organizations interested in these types of innovative approaches to review the political, economic, financial and technical factors which allowed these programmes to be developed and to review the administrative issues related to their implementation. These types of activities could be extended to other countries within the region to address a variety of priority needs including but not limited to the environment.

Global Environment Facility. The Global Environment Facility (GEF) is a three year pilot programme providing grants and low interest loans to eligible countries to help them carry out projects to relieve pressures on global ecosystems. The billion-dollar-plus fund supports international environmental management and the transfer of environmentally benign technologies. The GEF is a cooperative venture among national governments, the World Bank, United Nations Development Programme (UNDP), and United Nations Environment Programme (UNEP). The goals of the GEF support actions to reduce and limit emission of greenhouse gases which cause global warming, preserving the earth's biological diversity and maintaining natural habitats, arresting the pollution of international waters, and protecting the ozone layer from further depletion.

Funds provided through GEF are additional to regular country development assistance, offering cooperating countries the opportunity to demonstrate how development projects can integrate environmental management elements while addressing global environmental concerns. To qualify for funding from the facility, a project must relate to at least one of the four specific areas of concern. A further qualification is that a project would not be economically viable in the particular country without support from the facility. While most of the GEF funding will be for investment projects, a range of other activities can be supported within the financial limits of the GEF trust fund. These may include technical assistance, pre-investment and feasibility studies, information from the scientific community and training.

Two World Bank designed and managed projects included in the initial demonstration phase of the GEF have been approved in the Baltic Sea catchment area. These are the ECU 3.75 million Poland GEF Forest Biodiversity Protection Project which supports activities in the Sudety Mountains in the upper Oder/Odra River Basin and the Bialowieza Primeval Forest in the eastern Vistula River basin; and the complementary ECU 0.8 million Belarus Forest Biodiversity Project which supports activities in the portion of the Bialowieza Primeval Forest in Belarus.

Although the current resources of the Demonstration Phase of the GEF are fully allocated, it is anticipated that a second Operational Phase of the GEF may be in place by late 1994 which could provide a source of grant co-financing for priority environmental projects included in the Programme. It is recommended that priority be given to seeking support from the GEF under its biodiversity element for a Baltic Regional Programme for the Management of Coastal Lagoons and Wetlands, consistent with the priority established in the Programme. Under the international waters element, consideration should be given to seeking support for projects to address problems related to transboundary water pollution within the region such as on the Daugava, Nemanus, Vistula and Oder/Odra Rivers.

Foundation Grants. Grants from privately and publicly endowed foundations are an additional source of funding which can be used for activities consistent with the objectives and charter of the foundation. Foundations frequently direct their funds to support the development

of policies, human resources and innovative approaches to environmental management. Most foundations provide funds on a grant basis; however, they normally require that these funds be complemented by support from the cooperating local party in terms of finance, services in kind, and, in the case of conservation projects, land resources. Frequently, they seek to ensure that their funds are matched by those of other foundations, bilateral donors and/or international financial institutions in order to leverage their limited resources to create a larger activity.

The activities of the World Wide Fund for Nature are presently the foremost example of the use of foundation grants to promote the implementation of the Programme and to leverage the **mobilization** of local counterpart support. Recent examples of foundations supporting environmental activities in the region include support from a variety of foreign foundations for the establishment of the Institute for Sustainable Development in Poland which is involved in the Green Lungs Project in the northeastern Vistula River Basin. A major US foundation is working with the Global Environment Facility to establish endowments for management of areas of significance to biodiversity in Central and Eastern Europe, and the European Nature Heritage Fund is conducting a variety of projects. Other examples are the German Marshall Fund of the United States, Charles Stewart Mott Foundation, Moriah Fund and Rockefeller Brothers Fund which have been active in supporting environmental training activities under the Environmental Partnership for Central Europe Program,

Twinning Arrangements. Twinning Programmes have proven to be an important mechanism for the effective and sustained transfer of experiences between parties with similar interests and concerns. They are central to the success of the Programme. Within the region, there has been a long tradition of twinning arrangements between cities which has been intensified since the dramatic political changes of the last few years. The creation of the Union of the Baltic Cities is a manifestation of this change and provides an important vehicle for expanding and maintaining twinning arrangements between cities. The recently established twinning agreements, between **Riga** and Bremen and St. Petersburg and Hamburg, which are supported by these cities and the LIFE Programme of the Commission of the European Communities, provide an example of joint funding of activities to address environmental management issues on a cooperative basis in complex urban/industrial settings. A very practical outcome of one twinning arrangement is the present cooperation between Helsinki and Tallinn, where decommissioned equipment from various wastewater facilities will be rehabilitated, transported and installed in the twin city of Tallinn, with supplementary support from the Ministry of Environment of Finland.

These types of programmes need not be limited to municipal governments. For example, twinning arrangements have been established by county governments, agricultural associations, and nature conservation groups to share common experience and promote common interests. One example is an industrial audit training program in Poland which involves cooperation between engineering associations from Norway and Poland. Further, these types of programmes should be extended beyond the limits of the countries of the Baltic Sea catchment area. The present cooperation between the Province of Overijssel in the Netherlands with Ventspils, Latvia, the US State of Vermont with the Latvian Environmental Protection Committee on environmental management, Lithuania with the city of Chicago on wastewater treatment plant operation, and the **USAID** sponsored activities of the World Environment Center to promote industry-to-industry cooperation in the region, all provide good examples of these types of twinning arrangements.

5.5 SUGGESTED MECHANISMS TO IMPROVE PROGRAMME FINANCING

Several mechanisms to improve the utilization of grant and concessional funds for project financing have been identified and are discussed below.

Grant Funds. The scarcest and most important resources in this early stage of Programme implementation are grant resources. They are commonly used for investment, particularly at the local level, and for non-investment activities, but they are most critical for carrying out needed non-investment activities. These resources are needed for project preparation including all stages of planning, feasibility studies, policy studies, institutional strengthening and human resources development. They are of extraordinary value because they do not have to be repaid by the recipient. They are essential for the development of projects, and for creating an effective enabling environment for investment and plan implementation.

These funds are limited. The international financial institutions and the commercial banks do not have these types of resources. They can only be provided by a few international institutions and by individual donor governments. Because they are scarce and valuable, they should be allocated to the most important areas and used effectively. Priority for their use should be for flexible but targeted activities designed to accelerate implementation of the Programme.

This can be accomplished within the context of existing bilateral grant assistance programmes and the PHARE/TACIS and LIFE programmes of the Commission of the European Communities by focusing a significant portion of existing resources on the critical target areas outlined below.

- **Project Preparation and Related Studies.** Studies and institutional strengthening activities should be focused on those issues and constraints that affect implementation of the plan. Several bilateral donor countries have made grant funds available to the international financial institutions in the form of trust funds to be used for project preparation. This existing mechanism enables pre-feasibility and feasibility studies to be carried out on selected major environmental investments seeking financing. These studies are needed to establish whether a certain project is economically, financially, institutionally and technically viable. A precondition for financing a feasibility study should be that there are concrete possibilities to obtain financing for the actual investment. Project related studies including pre-design and design studies should only be prepared in direct co-ordination with the potential project financiers.
- **Strengthening the Local Financial Sector.** Strengthening the financial sector has been a high priority in current programmes of assistance to the formerly centrally planned economies of the Baltic Sea catchment area. An activity should be developed to improve the environmental profile of existing financial institutions and increase their capacity to finance environmental projects. This activity would aim to establish environmental project appraisal and credit evaluation capacity within existing financial institutions, particularly the private sector banks, newly established and existing public sector investment banks, and environmental funds. Loan officers would be trained in the application of techniques such areas as project appraisal, credit evaluation, financial planning, co-financing, and foreign financing to environmental projects.

- **Local Capacity Building - Investor Advisory Services.** The objective of this activity would be to assist small and medium-sized investors/borrowers in a cost effective way in their efforts to analyze project ideas, work out business and investment plans, obtain assistance for **specialized** investment preparation assistance, and prepare bankable proposals to the financing organizations. Assistance could be provided to public utilities and enterprises, and small and medium enterprises including those who are preparing for privatization. Twinning arrangements between public and private institutions in the Baltic Region would be one important source of experts and a mechanism for implementing the programme.
- **Support for Municipal Institutions.** This activity would provide advisory services and technical support as appropriate to assist local government authorities to establish an appropriate institutional and management framework for efficient management of environmental services, including those for water, wastewater and solid waste. This activity would in particular use innovative approaches that include twinning new public utilities and municipal water and wastewater enterprises with well established utilities within and outside the Baltic Sea catchment area.
- **Small and Medium Industrial Enterprises.** Small and medium industrial enterprises need independent assistance in planning and integrating environmental management into their business planning. This activity would develop and fund industrial business/environmental teams to provide advisory services, and carry out independent environmental/business audits and appraisals of existing industrial enterprises to prepare business plans and develop bankable proposals for environmental management, and to accelerate privatization where it will contribute to improvements in environmental management.

Long-term Concessional Loan Funds. The need for long-term, soft or concessional loan financing for environmental projects is often expressed in the region. As we have noted earlier, environmental projects do not commonly generate adequate cash flow from the standpoint of project finance, and rarely any foreign exchange. But their objectives and benefits, whether tangible or economic, remain high on the public's list of priorities because of their public health benefits, effects of the conservation of eco-systems, and economic benefits. For these reasons, soft financing has frequently been used by governments and donors on a very selective basis to avoid potential distortion effects on the economy. These concessional funds are used almost exclusively for public infrastructure projects where full financing at market terms is not available or not feasible, as is the case for many wastewater treatment schemes.

Nearly all debt financing for projects available at present is based on terms for which market rates are the benchmark. The best terms available for infrastructure financing from the international financial institutions are generally at market rates of interest, plus fees and credit margins if applicable, for a maximum of 15 to 20 years. Interest rates from commercial banks and export credit agencies are also linked to market conditions and depend on consideration of many factors, but the period of loans from these sources is even somewhat shorter, in the range of 5 to 8 years.

The Potential Role of Concessional Resources in the Financial Structure of Environmental Projects. Concessional resources would in all likelihood have to come from existing programmes. Despite the very limited levels of concessional resources one could expect to be available in the near term, these funds could be expected to have a significant impact on the initial phases of Programme implementation for several reasons:

- first, because these concessional resources can be combined or blended advantageously with other sources of funds to achieve a more affordable financial structure;
- second, many projects in the Programme will be phased over the long-term, and the initial investment package is expected to be modest in relation to the estimates of full investment cost; and
- third, the first phase investments will include important long-term components including **commercialization** of water and wastewater services, metering, rehabilitation and modernization of key parts of the water system, and restructuring of the water companies.

Suggested Principles for the Use of Long-Term Concessional Funds. For long-term concessional funds to be effective in reducing significantly the pollution load to the Baltic Sea, they should be allocated to projects where they can be a catalyst or instrument to mobilize larger sources of funds which when combined with the concessional funds provides a complete and feasible financial structure for the timely and sustainable implementation of the project. Suggested principles to guide the use of these funds include:

- support should be limited to a fixed proportion of total project financing needs, perhaps to be determined on a case-by-case basis;
- support should be contingent on there being commitment by all parties of sufficient funds to provide full project financing for timely implementation;
- support should take the form of a long-term loan at substantially below market rates;
- support for municipal environment projects should be contingent on the implementation of a sound and sustainable management framework for the municipality's water and wastewater system, including legal and organizational reforms needed to insure project sustainability;
- support for industrial projects should be contingent on implementation of a sound business plan and adequate measures for strengthening the management of the enterprise;
- support should be contingent on the completion of a feasibility study to an accepted international standard of all technical, economic, financial, and institutional issues; and
- support should be contingent upon demonstration of the financial feasibility of the project including the affordability of the project, adequacy of tariffs and revenues, and feasibility of the proposed arrangements for project financing.

5.6 BLENDING DIFFERENT SOURCES OF CAPITAL

The terms and conditions for the utilization of the basic sources of project finance that are available to finance Programme projects -- medium and long term financing from international financial institutions (e.g. EBRD, EIB, NIB, World Bank); short-term financing from export credit agencies and commercial banks; equity investments from organizations such as EBRD, IFC and NEFCO; guarantees provided by states and financial institutions; and grants from local and central government authorities and foreign governments -- are very different, and each of these sources also has limits on either the total amount of funds that can be committed to a region, country or project in the case of bilateral programmes, or limits on the amount of country or project credit or loan exposure in the case of banks and export credit agencies.

There are, therefore, several important reasons why it will be necessary to blend different sources of financing, including:

- to spread credit risk so that the share of credit risk taken by any one source is within their respective acceptable limits of exposure;
- to remain within the limits of funds available from any one source, i.e., the amounts available from many sources may be below the project financing requirements;
- to take better account of the differences between the short-term and long-term components of the investment programme; and
- to combine different financing terms into a project financing structure that yields a more affordable cost of debt service.

To achieve the benefits of this approach the different banks and sources of funds should cooperate to determine the most suitable and affordable financing plan for viable projects.

PROPOSED PROGRAMME IMPLEMENTATION FRAMEWORK

6.1 INTRODUCTION

This chapter provides a proposed implementation framework for integration of the elements of the Programme and identifies the key parties, funding sources and principle activities which need to be undertaken during the initial phase of the Programme (1993-1997). The implementation framework which is summarized in Table 11 is intended to provide a means to further focus and coordinate the available resources on critical short-term activities in each Programme area. The chapter also defines activities which should be undertaken for programme coordination and reporting and proposes possible priority actions and funding targets for each Programme element. These funding targets are illustrative and reflect the need to adjust the anticipated level of support available for implementation of the Programme consistent with prevailing economic trends. The activities have been selected to support both the implementation of selected priority actions and to build the knowledge base necessary for major actions in the medium and long term.

The survey of financing sources illustrates the fact that the mobilization of resources is a complex process and success in this area will determine the rate at which the Programme is implemented. The paper highlights the significant measures concerning policies, institutional arrangements and approaches to project design which need to be addressed to accelerate Programme implementation. Considerable progress has already been made in initiating key aspects of the Programme as documented in Chapter 3, and important lessons have already been learned from these early activities, as outlined in Chapter 4 and Attachment A, that will enable the Programme to be implemented in an increasingly efficient and effective manner.

Several actions which will require special attention in initial phase of Programme implementation are discussed below.

- **Mobilization of Local Funding.** The greatest proportion of project financing must come from local resources; however, despite the efforts on the part of each concerned government, local resources are expected to remain limited in the near term. Local and national governments are making an effort to mobilize resources through fees, fines, and to increase the revenues available for environmental projects through increased user charges. The slow progress is largely due to the precarious position of the economies in transition. Nevertheless, actions should be taken to support putting project financing mechanisms and incentives in place, to develop the institutional capacity to implement them, and to create greater public awareness of their importance.
- **Support for Institutional Reforms.** Activities will be required to support institutional reforms in the area of municipal water and wastewater services to accelerate implementation of the Programme. The importance of these reforms for investment is often not appreciated. Without effective and financially sound institutions to implement projects, many sources of project finance, particularly international financial institutions and commercial banks, simply cannot be utilized.

- **Support for Industries in Transition.** Activities will be required to support industrial pollution control, especially pre-treatment prior to discharge to municipal sewers, during the initial phase of the Programme. The slow pace of privatization and restructuring has constrained the mobilization of public and private investment for industrial pollution control. The least-cost approach to these environmental problems is to integrate environmental management investments into investments in the restructuring and modernization of the production processes in order to eliminate wastes through cleaner technology and reduce investment needs for environmental management. The private sector plays the leading role in mobilizing the funds for these investments and it has been reluctant to move quickly because of several major uncertainties and risks, including the lack of clarity regarding ownership (as state owned enterprises they are unlikely to be attractive investments), uncertainty regarding the legal framework for foreign direct investment, lack of clear rules concerning environmental liability and the unknown or uncertain competitiveness, financial viability, and markets of the enterprises. **Recognizing** this situation, cost-effective actions may need to be taken in selected industrial enterprises prior to their complete transition from public to private ownership. Concurrently actions needs to be taken to support the integration of environmental concerns into the development of new industries, especially small and medium scale, in order to prevent new problems from arising.
- **Phasing of Investment.** Due to financial and institutional constraints, implementation of projects will need to be phased to spread expenditures over time and to allow for concurrent strengthening of institutions. The initial phase will in most cases consist of limited investments in the most critical physical works, along with policy reforms and institutional strengthening. This situation would be applicable to both municipal and industrial investments. Over the near term this will lead to stronger institutions and a stronger policy and legal framework that will enable accelerated investment as the economies in transition stabilize and begin to grow.
- **Support for Elements with Long Project Development Periods.** Some investments will have a long development, particularly control of non-point sources, and the management of coastal wetlands and lagoons. Emphasis in Phase I of these elements will be on putting in place an effective institutional framework including management plans and on development and implementation of well designed pilot and demonstration activities. These investments in the short-term would provide the basis for a large number of well planned interventions to be implemented over the medium and long-term in these areas.

Although the above factors have combined to slow the rate at which resources are committed to and utilized for various Programme activities, the first year of Programme implementation has demonstrated that despite the short-term lack of financial absorptive capacity, a great deal can be accomplished. The foundations established during this early phase will ensure the long term success of the Programme.

6.2 PROGRAMME COORDINATION

Action should be taken to improve coordination at a variety of levels. Overall coordination and monitoring of the Programme should be undertaken by the HELCOM Programme Implementation Task Force (HELCOM PITF). Key areas requiring careful monitoring would be support for policies and regulations, institutional strengthening, human resources development, cofinancing opportunities, project preparation activities, and applied research. Although the monitoring of implementation would be on a continuous basis, it is recommended that the HELCOM PITF meet annually to review progress, identify constraints to implementation, and evaluate ways to improve the quality of work conducted under the Programme. On the basis of formal progress reports submitted by the members of the PITF, an Annual Progress Report would then be prepared. It is anticipated that the HELCOM PITF Secretariat would convene these annual coordination meetings and prepare the subsequent annual reports. Funding for coordination activities would likely be met as part of the annual costs of HELCOM itself which are covered by the member countries.

Effective coordination of the Programme by the HELCOM PITF will require a **“pro-active”** approach to promoting and monitoring of the different programme elements. Priority should be given to recruitment of full-time PITF Secretariat staff, in particular a Programme Coordinator with a broad managerial and technical background, familiar with financing mechanisms as well as with technical assistance and project preparation activities. In addition, it is recommended that PITF members be appointed to serve as coordinators for each Programme element. Such an arrangement would provide for greater involvement of PITF members, and a more continuous and focused oversight of activities undertaken within each element with the benefit that opportunities to enhance Programme implementation will not be missed.

It is recommended that additional full-time staff resources be made available either directly or indirectly to support the activities of the HELCOM PITF. These additional resources would be especially useful in improving the planning and coordination of institutional strengthening, human resources development and the establishment of twinning arrangements and other types of cooperative activities needed for successful implementation of the Programme. In this regard, priority should be given to support the strengthening and establishment of additional twinning arrangements for municipalities, industries and to address non-point source pollution from agriculture, livestock operations and rural settlements.

The HELCOM PITF should also take the initiative to closely coordinate its activities with other organizations whose work has a strong impact on the Baltic Sea. One of the most important of these concerns active coordination with and input to the work on the reduction of mobile sources of air pollution being conducted at the Baltic Regional level by the Working Group for Transport and Environment. Due to the importance of proper environmental management in the transportation sector to the long-term conditions of the Baltic Sea, the HELCOM PITF should be prepared if requested to provide input to the activities of this working group. In addition, it should monitor progress made in implementation of policies, regulations and projects to address the reduction of point source air pollution. These would require routine discussions with members of the HELCOM PITF concerning their activities in this area. Given the **recognized** importance of complementary actions to address these concerns to the objectives of the Programme, PITF reporting should include information on complementary activities and progress in these areas.

6.3 POLICIES, LAWS AND REGULATIONS

While it is the prerogative of the national and local governments to consider and adopt the necessary policies and legislation, a considerable amount of effort will be needed to prepare the most appropriate policies and regulations. Such preparatory and advisory activities could partly be provided under bilateral grants or as part of the PHARE, TACIS and LIFE programmes of the Commission of the European Communities. Another source is the sector studies that the international financial institutions such as the World Bank undertake. Such sector studies serve not only to suggest possible policies but also pre-identify investment projects and technical assistance programmes that could support the actual implementation of the policies and regulations.

One of the most important effects of policy reforms and economic restructuring is the potential for substantial savings in investment costs. Policy reforms could be expected to sharply reduce, among other things, the resource use in the countries' economies. With lower consumption of energy, water, and production inputs, the amount of liquid and solid wastes will also decrease and its characteristics change, altering the type and scale of treatment that will be needed. Although there is a natural temptation to focus on the investment components of the Programme, yielding to it could be costly in the long run. The effects of policy reform have to be weighed into the selection, size and type of investment projects to control combined municipal and industrial point source pollution and address non-point source pollution.

It is suggested that ECU 5 million be earmarked to develop the necessary policies, laws and regulations during the first phase of the Programme. The suggested financing sources would be predominantly grants or below market rate loans. In some cases countries may be prepared to include support for policy related activities under market rate loans. Table 11 (B.1) indicates the potential funding sources and key activities.

6.4 INSTITUTIONAL STRENGTHENING AND HUMAN RESOURCE DEVELOPMENT

Establishing the appropriate legislation and sector policies is just the first step towards the creation of functioning institutions. The costly and time-consuming task of strengthening these institutions and developing their human resource base remains. Chapter 4, and Attachments A and B, outline several priority areas.

The most effective mode for supporting these activities is technical assistance provided by a host of private and public sources. Many of these activities will likely be financed by bilateral and CEC PHARE/TACIS/LIFE grants. However, loans from the international financial institutions could play an increasing role, particularly since technical assistance should ideally be concurrent with measures to invest in better systems.

The Union of the Baltic Cities could be expected to play a pivotal role in developing continuous and comprehensive exchanges of experience and staff between modern utilities in the Nordic countries and Germany on the one hand, and the emerging utilities in Estonia, Latvia, Lithuania, Poland, and Russia on the other. Actions should be taken to find a means to extend municipal twinning agreements to include Belarus, Czech Republic, Slovak Republic and Ukraine. Twinning agreements between local governments and agricultural interests should be developed to support the control of non-point source pollution. Measures should also be taken to develop industry-to-industry cooperation programmes.

It is suggested that a minimum of ECU 40 million be invested in Institutional Strengthening and Human Resource Development in the first phase of the Programme. The suggested financing sources would predominantly be concessional funds, grants or below market rate loans. However, in some instances activities may be financed as elements of market rate loans. Twinning arrangements would allow for the mobilization of supplemental resources from the cooperating parties. The suggested sources are identified in Table 11 (B.2).

6.5 COMBINED MUNICIPAL AND INDUSTRIAL WATER AND WASTEWATER

Control and treatment of municipal and industrial wastewater represents over half of the priority hot spots, and is by far the most costly element of the Programme, accounting for about half of the Phase I investments and for an even larger share of the entire Programme. It is also here that the potential for savings is the greatest.

Municipal water projects will typically involve institutional restructuring and reform, financial reform including increased water and wastewater charges, installation of meters, and improved financial practices and procedures, in addition to capacity investments. As we have noted in Chapter 4 and Attachment A, the real investment needs are complex and require priorities to be put in the context of a long-term investment programme. These issues can only be addressed systematically in a comprehensive and rigorous feasibility study.

The cost of a rigorous and comprehensive feasibility study is marginal compared to overall physical investment cost. Unfortunately, most "feasibility" studies carried out over recent years have been little more than technical designs using costly Western technology. Little attention has been paid to the affordability of the investments proposed. As a result, large numbers of technical designs now available for parts or entire municipal treatment systems have little or no possibility for implementation.

The magnitude of savings possible as a result of comprehensive feasibility studies is large. One recent feasibility study for a partially completed municipal treatment plant produced a phased investment programme which identified an indispensable first stage investment of about ECU 5 million of the ECU 27 million estimated for the total project. Such results stem from including the effects of better controlled water consumption, staging investments over long time periods, and postponing all but the highest-priority investment items. They also point to past inefficient design practices prevalent in the formerly centrally planned economies, where opportunity costs of resources were systematically disregarded. On the other hand, rehabilitation of existing treatment plants or efficient completion of partially constructed plants provide an opportunity to achieve acceptable first-phase treatment results at relatively low costs.

The discussion in Chapter 4 suggested that about 20 million ECU would be needed for project preparation and feasibility studies for this element of the Programme. Funding for these activities would predominantly be grants or below market rate loans, but in some instances activities may also be financed by a portion of the proceeds from market rate loans. Financing of investments would be from a combination of local and foreign sources. In many cases it may be possible to combine local financing with foreign market rate loans, principally from international financial institutions and below market rate loans or grants from bilateral sources. It may also be possible to attract private investment into properly structured water and wastewater utilities. Table 11 (B.3) indicates the potential sources of funds and key activities.

6.6 INDUSTRIAL POLLUTION CONTROL

While most if not all investment to control industrial pollution is eventually expected to be made by the private sector, a number of important initiatives need to be carried out during the current period of transition to a market type economy in the eastern and southern portions of the Baltic Sea catchment area. Chapter 4 suggests that a pro-active approach may have significant environmental and economic benefits. Important activities include sector studies to identify investment opportunities and develop activities and policies to guide and accelerate privatization, independent environmental/business audits, and the provision of technical and business advisory services to the management of the newly privatizing enterprises. The more benign approach of waiting for privatization and market forces to run their course risks needless or less cost-efficient investments in other sectors, including municipal water services, because of the uncertainty that would otherwise prevail for some time concerning the ultimate level of industrial pollution load.

In the intermediary phase before privatization has taken place, actions to deal with the most urgent environmental risks may have to be taken. These risks include industrial plants with severe health hazards or situations which may cause irreversible damage to the environment. Certain environmental investments might be a pre-requisite for privatization, and others may be inherently economically viable, such as energy conservation measures.

Although the ultimate goal should be privatized and economically self-sustaining industries, some form of subsidy might have to be considered as an intermediate measure to overcome environmental problems. Innovative financing means should be sought for viable industrial enterprises. For instance, tax and fee reductions, additional export licenses, governmental guarantees for loans, interest subsidies and grants could be considered. A combination of these means can also be tailored to specific circumstances.

It is suggested that a coordinated programme of about 10 million ECU be developed to support accelerated investment in industrial pollution control and for waste minimization demonstrations. Funding for these activities would predominantly be grants or below market rate loans; however, in some instances activities may be financed as elements of market rate loans. Financing of investments resulting from these activities would be from local sources, in many cases with foreign loans and private investment. In some cases it will be possible to combine foreign market rate loans, principally from international financial institutions, with below market rate loans or grants from bilateral sources. Table 11 (B.4) outlines the probable sources of funds and key activities.

6.7 CONTROL OF NON-POINT SOURCE POLLUTION

Control of non-point source pollution underlines the potential trade-off that exists between those investments that are financially feasible and those that can be expected to have the greatest impact upon the ecological state of the Baltic Sea. Actions to control non-point source pollution are important due to the large nutrient load on the Baltic Sea which originates from agricultural run-off, large livestock operations and rural settlements. The control of such significant pollution is likely to be the ecologically most productive investment. Yet, it could also be expected to be difficult to finance and implement such control measures. Individual investments are prone to be relatively small and fragmented. Hence, initial assistance is and heavily skewed towards technical assistance and policy reform.

Earlier discussion suggests that the first Phase of the Programme in this area should concentrate on addressing policy issues, and a series of well-coordinated and carefully designed pilot and demonstration projects. It is suggested that at least 30-40 million ECU be mobilized for these types of activities. Actions should also be taken to establish a twinning framework for cooperation and collaboration on programme activities between parties in this area to provide a long-term base for cooperation. Funding for these activities would predominantly be grants or below market rate loans. However, in some instances, activities may be financed as elements of market rate loans. Financing of investments to control wastes from large agricultural enterprises and livestock operations may be provided by private investment once the future of these operations can be resolved. In some cases, it will be possible to combine foreign market rate loans, principally from international financial institutions, with below market rate loans or grants from bilateral sources. Table 11 (B.5) outlines the probable sources of funds and key activities.

6.8 MANAGEMENT PROGRAMMES FOR COASTAL LAGOONS AND WETLANDS

The scope for support in this area, in addition to the ongoing activities outlined in Section 3.7, is considerable, but as that discussion highlights, effective coordination will be required to ensure that benefits are maximized, projects are cost-efficient, and experience can be transferred between locations. Table 11 suggests that a HELCOM PITF working group, under the leadership of the World Wide Fund for Nature, take a lead responsibility for coordination of this Programme element. Given the complexity of developing and implementing proper management programmes for these areas, major actions should be taken in the early phase of the Programme. This is especially important in Estonia, Latvia and Lithuania, where changes in land ownership may pose special problems in the future unless management plans are in place and funded. The applied research programme is also expected to contribute significantly to this programme.

It is suggested that a minimum of ECU 20 million be invested in the management programmes for coastal lagoons and wetlands, recognizing the potential for irreversible changes in their ecology if action is not taken in the near term. Priority for the use of funds should be given to the development of management plans for the priority areas included in the Programme. It is suggested that action be initiated for preparation of a proposed regional project to support implementation of these management plans for submission for funding under the Operational Phase of the Global Environment Facility. Funding for these activities would predominantly be grants or below market rate loans. However, in some locations activities may be financed as elements of market rate loans. Financing of investments concerning recreation and tourism may be made by private investors. Table 11 (B.6) outlines the probable sources of funds and key activities.

6.9 APPLIED RESEARCH

Several important Programme areas, including environmental trends, evaluation of critical loads, linkage between Programme activities and impacts on human health, and the ecology and hydrology of the coastal lagoons and wetlands, have been identified as high priority applied research areas. A number of other research topics could be identified in support of more effective and efficient regulatory control of pollution. The Environment Committee of HELCOM, in cooperation with the ICES, could work to prioritize research topics and estimate funds needed. This should be a high priority of the HELCOM PITF.

It is suggested that a minimum of ECU 5 million be invested in a well coordinated and closely supervised programme of applied research during the first phase of the Programme. Funding for these activities would predominantly be grants or below market rate loans. Some activities would be expected to be undertaken in the context of currently established national applied research programmes. Support for specialized equipment required for certain types of research may be included as elements of market rate loans. Table 11 (B.7) outlines the probable sources of funds and key activities.

6.10 PUBLIC AWARENESS AND ENVIRONMENTAL EDUCATION

Creating greater public awareness and support for the Programme is vital to establishing and maintaining a high priority for environmental management actions. Table 11 suggests that a HELCOM PITF working group, under the leadership of Coalition Clean Baltic, take a lead responsibility for establishing and carrying out these programmes. Activities under this element of the Programme are required if a broad-based public constituency is to be developed to support the Programme over the long-term. Measures should be taken to support the strengthening of the capacity of local organizations to plan and undertake public awareness and environmental education activities. Printing of informational and educational material should be done locally to the fullest extent reasonable.

It is suggested that a minimum of ECU 5 million be invested in a well coordinated programme of public awareness and environmental education during the first phase of the Programme. Funding for these activities would predominantly be concessional funds and grants. Table 2 (B.8) outlines the probable sources of funds and key activities.

Table 11 - Phase I - Programme Implementation Framework

Programme Element	Key Parties	Funding Sources	Key Activities	Comments
A. PROGRAMME COORDINATION AND REPORTING				
I. Programme Coordination	<ul style="list-style-type: none"> - HELCOM PITF Secretariat - HELCOM PITF Members - Other Cooperating Parties 	HELCOM Contracting Parties	<ul style="list-style-type: none"> - Undertake “pro-active” actions to promote the Programme - Establish system of coordinators for each Programme element - Facilitate exchange of information - Establish and maintain a register of activities related to implementation of the Programme - Establish and maintain coordination links with important complementary actions in region 	<ul style="list-style-type: none"> - Priority should be given to recruitment of full-time PITF Secretariat staff - PITF members should be appointed to be coordinators for each Programme element - Maintain formal coordination with Baltic Region Working Group on Transport & Environment - Establish coordination with Union of the Baltic Cities
2. Programme Reporting	<ul style="list-style-type: none"> - HELCOM PITF Secretariat - HELCOM PITF Members - Other Cooperating Parties 	HELCOM Contracting Parties	<ul style="list-style-type: none"> - Issue regular Programme Newsletter - Annual Reports - Special reports as required by HELCOM PITF 	<ul style="list-style-type: none"> - Programme Newsletter should be issued quarterly - First Annual Report would cover 1993 activities
3. Programme Updating	<ul style="list-style-type: none"> - HELCOM PITF Secretariat - HELCOM PITF Members 	HELCOM Contracting Parties	<ul style="list-style-type: none"> - Monitor implementation of Programme - Update and revise Programme as appropriate - Review priorities under the Programme 	<ul style="list-style-type: none"> - Programme should continue to stress importance of balance between local, national and regional objectives - Monitor progress made in complementary policy and investment activities being taken outside the Programme to address regional air pollution, especially Black Triangle Programme

Table 11 - Phase I - Programme Implementation Framework

Programme Element	Key Parties	Funding Sources	Key Activities	Comments
B. PROGRAMME ELEMENTS				
1. Policies, Laws and Regulations	Local - National Governments - Local Governments - Policy and Legal Institutes - NGOs Regional - HELCOM - Policy and Legal Institutes Foreign - CEC - Bilateral Donors - International Financial Institutions - Policy and Legal Institutes - NGOs	Domestic Funding - National Government Budgets Grants - Bilateral Donors - CEC PHARE/TACIS/LIFE - Foundations - NGO Programmes Loans - International Financial Institutions	<ul style="list-style-type: none"> - Appoint PITF member to serve as coordinator for element - Establish priorities in relation to available financial and human resources - Establish national and local financing mechanisms - Strengthen regulatory and enforcement system - Enabling legislation to establish municipal water utilities - Review water quality standards - Establish and implement appropriate environmental assessment procedures - Coordination with groups concerned with environmental aspects of agriculture and transportation policy within the region 	<ul style="list-style-type: none"> - Support development of self-financing mechanisms - Earmark environmental fees and fines for Programme activities - Environmental funds have an important role in domestic financing - Incorporate environmental considerations into privatization programmes - Important to coordinate with Baltic Region Working Group on Transport & Environment concerning policy measures to reduce air pollution from mobile sources - Coordinate activities on non-point source pollution with agricultural policy issues

Table 11 - Phase I - Programme Implementation Framework

Programme Element	Key Parties	Funding Sources	Key Activities	Comments
2. Institutional Strengthening and Human Resource Development	<ul style="list-style-type: none"> Local - National Governments - Local Governments - Local Financial Institutions - Academic Institutions - NGOs Regional - Union of the Baltic Cities Foreign - CEC - Bilateral Donors - International Financial Institutions - NGOs 	<ul style="list-style-type: none"> Domestic Funding - National Government Budgets - Local Government Budgets - National Environmental Funds Grants - Bilateral Donors - CEC - PHARE/TACIS/LIFE - UNDP - Foundations - NGO Programmes Loans - International Financial Institutions Other - Twinning agreements between various parties 	<ul style="list-style-type: none"> Appoint PITF member to serve as coordinator for element Targeting of institutional strengthening and human resources development Expand Baltic Utilities Initiative, building on success of Riga Workshop Expand municipal twinning partnerships and agreements Strengthening local financial institutions to participate in Programme-related activities Support should be provided for needs in the agricultural sector Well focused activity for strengthening local financial institutions needs to be developed 	<ul style="list-style-type: none"> - PITF should provide a mechanism to improve coordination of activities undertaken in this area - Priority should be given to strengthening local financial institutions to support their participation in Programme activities - Union of the Baltic Cities should be requested to coordinate municipal twinning initiative - Priority should be given to support for priority municipalities and industries - Support needed for strengthening local financial institutions to participate in Programme activities

Table 11 - Phase I - Programme Implementation Framework

Programme Element	Key Parties	Funding Sources	Key Activities	Comments
<p>3. Combined Municipal and industrial Wastewater</p>	<p>Local</p> <ul style="list-style-type: none"> - National Governments - Local Governments - Private and Public Sector Water and Wastewater Companies - Local Financial Institutions <p>Regional</p> <ul style="list-style-type: none"> - Union of the Baltic Cities <p>Foreign</p> <ul style="list-style-type: none"> - CEC - Bilateral Donors - International Financial Institutions - Private Sector - Export Credit Agencies 	<p>Primary Sources</p> <p>Domestic Funding</p> <ul style="list-style-type: none"> - National Government Budgets - Local Government Budgets - National Environmental Funds - Pretreatment investments by industrial enterprises <p>Loans/Investments</p> <ul style="list-style-type: none"> - International Financial Institutions <ul style="list-style-type: none"> - medium term loans - equity - Private Sector <ul style="list-style-type: none"> - equity <p>Secondary Sources</p> <p>Grants</p> <ul style="list-style-type: none"> - CEC PHARE/TACIS /LIFE <ul style="list-style-type: none"> - feasibility studies - institutional development - support for Environmental Funds - Bilateral Donors <ul style="list-style-type: none"> - feasibility studies - institutional development - project investments <p>Loans/Investments</p> <ul style="list-style-type: none"> - Export Credit Agencies <ul style="list-style-type: none"> - short term credits <p>Other</p> <ul style="list-style-type: none"> - Twinning arrangements between cities - Eco-Conversion 	<ul style="list-style-type: none"> - Appoint PITF member to serve as coordinator for element - Establishment of local project financing mechanisms - Mobilize funds for project financing - Preparation of comprehensive feasibility studies - Expand metering and increase water charges - Institutional reform and strengthening - Demonstration projects - Priority investments - Rationalization of water use - Industrial pre-treatment activities <ul style="list-style-type: none"> - environmental audits - waste minimization strategies - Advisory support for pre-treatment at industries, especially small & medium scale - Rehabilitation of existing facilities/completion of selected facilities - Sludge management - Strengthen monitoring systems for plant management and environmental enforcement actions 	<ul style="list-style-type: none"> - Phased implementation of improvements - Projects undertaken on a case by case basis - Support required for feasibility studies of proposed projects - Institutional and financial reforms are necessary to encourage investment - In the context of decentralized environmental management, the role of local governments needs special attention - Baltic Utilities Initiative Workshop in Riga - February 16-17, 1993 adopted the Riga Statement, stressing the need for financially and institutionally autonomous water supply and sewerage utilities

Table 11 - Phase I - Programme implementation Framework

Programme Element	Key Parties	Funding Sources	Key Activities	Comments
<p>4. Industrial Pollution Control</p>	<p>Local</p> <ul style="list-style-type: none"> - Public and Private Industrial Enterprises - National Governments - Local Governments - Local Financial Institutions <p>Foreign</p> <ul style="list-style-type: none"> - CEC - Bilateral Donors - International Financial Institutions - Private Sector - Export Credit Agencies 	<p>Primary Sources</p> <p>Domestic Funding</p> <ul style="list-style-type: none"> - Direct investment by industrial enterprises - National Government Budgets - Local Government Budgets - National Environmental Funds <p>Loans/Investments</p> <ul style="list-style-type: none"> - Foreign Direct Investment - International Financial Institutions - IFC/NEFCO/EBRD Investments - Export Credit Agencies <p>Secondary Sources</p> <p>Grants</p> <ul style="list-style-type: none"> - Bilateral Donors <p>Other</p> <ul style="list-style-type: none"> - Cooperative programmes between domestic and foreign industries 	<ul style="list-style-type: none"> - Appoint PITF member to serve as coordinator for element - Evaluation of financial viability of priority enterprises - Phased implementation of recommendations of independently prepared environmental audits of priority industrial facilities - Implementation of demonstration waste minimization programs at priority industrial facilities - Advisory support for small and medium scale industries to evaluate cost-effective environmental actions - Identification of priority actions for high risk industries during the privatization and restructuring process - Development of an "industry-to-industry" cooperative programme 	<ul style="list-style-type: none"> - Phased implementation of improvements - Projects undertaken on a case by case basis following determination of economic viability - Providing clear environmental rules for the private sector is essential to attract foreign investment and remove uncertainty for business - Resolution of issues associated with ownership and responsibility for environmental liability are priorities - Actions need to be taken at high risk industrial facilities before the privatization and restructuring process will be completed - Twinning arrangements in the industrial area should receive priority

Table 11 - Phase I - Programme Implementation Framework

Programme Element	Key Parties	Funding Sources	Key Activities	Comments
<p>5. Non-Point Source Pollution (Agricultural Runoff, Rural Settlements and Large Livestock Operations)</p>	<p>Local</p> <ul style="list-style-type: none"> - Agriculturalists - Public and Private Sector Agricultural Enterprises - National Governments - Local Governments - Local Financial Institutions <p>Foreign</p> <ul style="list-style-type: none"> - CEC - Bilateral Donors - International Financial Institutions - Private Sector - Export Credit Agencies - Agricultural and Rural Extension Services - Applied Research Organizations - NGOs 	<p>Primary Sources</p> <p>Domestic Funding</p> <ul style="list-style-type: none"> - National Government Budgets - Local Government Budgets - National Environmental Funds - Agricultural Sector Organizations <p>Secondary Sources</p> <p>Grants</p> <ul style="list-style-type: none"> - Bilateral Donors - CEC PHARE/TACIS <p>Loans/Investments</p> <ul style="list-style-type: none"> - Private Sector Investors, including foreign direct investment (especially livestock operations) - Export Credit Agencies (especially livestock operations) - International Financial Institutions <p>Other</p> <ul style="list-style-type: none"> - Debt for Environment Swaps - Eco-Conversion - Twinning arrangements between agricultural organizations and local governments 	<ul style="list-style-type: none"> - Appoint PITF member to serve as coordinator for element - Development and implementation of policies concerning agriculture intensification, fertilizers and pesticides - Reduction of subsidies for agricultural inputs - Continued definition of problems and their causes - Demonstration projects - Applied Research/Extension - Evaluation and implementation of alternative approaches to agricultural development - Evaluation and transfer of experiences from other countries within/outside the region - Development of a specially designed series of twinning arrangements to support implementation of this element 	<ul style="list-style-type: none"> - Phased implementation of improvements - Policy actions required for many aspects of this issue - Demonstration projects will be critical to establish appropriate actions and their local costs - Support for agricultural extension services will be critical for a long-term impact - Problem with uncertain future of livestock operations will slow investments to address control of their wastes - Transfer of experience between countries should be carefully reviewed for suitability under local conditions prior to implementation - Establishment of twinning arrangements would be important for long-term success of this element

Table 11 - Phase I- Programme Implementation Framework				
Programme Element	Key Parties	Funding Sources	Key Activities	Comments
6. Management Programmes for Coastal Lagoons and Wetlands	Local - National Governments - Local Governments - Applied Research Institutions - NGOs Regional - World Wide Fund for Nature Foreign CEC Bilateral Donors International Financial Institutions Applied Research Organizations NGOs	Primary Sources Domestic Funding - National Government Budgets - Local Government Budgets - National Environment Funds Grants CEC PHARE/TACIS /LIFE Bilateral Grants Global Environment Facility World Wide Fund for Nature Foundations Other - Debt for Environment Swaps Secondary Sources Loans - International Financial Institutions - Eco-tourism Investments by Private Sector Other - Eco-Conversion - Bilateral Science and Technology Cooperative Agreements	<ul style="list-style-type: none"> - Formation of a HELCOM PITF working group under leadership of World Wide Fund for Nature to coordinate this element - Prepare inventories of key areas - Develop management plans in direct cooperation with local government - Implement demonstration project - Protect key areas by retaining public ownership - Measures should be taken to prepare a regional project for potential funding under operational phase of Global Environment Facility 	<ul style="list-style-type: none"> - Requires priority due to high level of stress suffered by these fragile environments - Management plans and applied research are needed before full scale activities can be undertaken - Changes in land use associated with transfer of lands from public to private ownership may have adverse impacts - Development of basic data inventory, preparation of initial management plans and formal requests from cooperating governments would be required for development of a regional project for possible Global Environment Facility funding

Table 11 - Phase I - Programme Implementation Framework

Programme Element	Key Parties	Funding Sources	Key Activities	Comments
<p>7. Applied Research</p>	<ul style="list-style-type: none"> HELCOM Committees - International Baltic Sea Fisheries Commission - Academic Institutions - Applied Research Organizations 	<p>Domestic Funding</p> <ul style="list-style-type: none"> - National Government Budgets - academic - environmental - research <p>Grants</p> <ul style="list-style-type: none"> - Global Environment Facility - CEC PHARE/TACIS/LIFE - Foundations - NGO Programmes <p>Other</p> <ul style="list-style-type: none"> - Bilateral Science and Technology Cooperative Agreements 	<ul style="list-style-type: none"> - Environment Committee of HELCOM in coordination with the relevant existing HELCOM working groups - Proposed Applied Research Programme should be prepared and coordinated by HELCOM PITF Secretariat in coordination with selected members of Task Force and relevant HELCOM Committees - Abstracts of key Programme related applied research should form part of Annual Report 	<ul style="list-style-type: none"> - Priority should be given to establishing linkages between Programme activities and impacts on human health - Investigation of linkages between main Sea and coastal lagoons should be given priority - Continued work required on environmental trends and evaluation of critical loads - Special studies should be considered on transportation impacts on the Baltic Sea in conjunction with Working Group on Transport and Environment
<p>8. Public Awareness and Environmental Education</p>	<ul style="list-style-type: none"> - Citizens of all Baltic countries - National Governments - Local Governments - Union of the Baltic Cities - Coalition Clean Baltic - NGOs - Mass media - Education systems 	<p>Domestic Funding</p> <ul style="list-style-type: none"> - National Government Budgets <p>Grants</p> <ul style="list-style-type: none"> - Bilateral Grants - CEC PHARE/TACIS/LIFE - Foundations <p>Other</p> <ul style="list-style-type: none"> - Private Citizen Contributions to NGOs 	<ul style="list-style-type: none"> - Possible formation of a PITF working group under leadership of Coalition Clean Baltic to coordinate this element - Creation of a widespread base of public support through dissemination of information on the long-term objectives of Programme - Promotion of an understanding of the linkages between environment and development in the Baltic region 	<ul style="list-style-type: none"> - Priority should be given to making public aware of the long-term nature of the Programme and its benefits in order to build a broad-based constituency - NGOs would play an important role at regional, national and local levels - Materials should be designed for regional use with country specific additions

ATTACHMENT A

MAIN PROJECT PREPARATION ISSUES FOR COMBINED MUNICIPAL AND INDUSTRIAL WASTEWATER PROJECTS

Main Project Preparation Issues. In the course of developing detailed programmes for investment project preparation for a large group of cities in the Baltic region, a number of common and important issues, which are outlined very briefly below, have been identified. The feasibility studies planned and being carried out as indicated in Table 7 of the main text are designed to address the main issues affecting the financing and delivery of municipal water and environmental management services, and constraining implementation of the proposed investment project. These issues have been decisive in slowing or preventing progress in implementing municipal projects under the Programme, and must be overcome if investment funds are to be mobilized and used effectively.

- **Water consumption is too high** - water consumption is as much as two to three times higher than in other areas of Europe resulting in high water production and operating costs, and over-design of key facilities such as pumping stations and the hydraulic elements of wastewater treatment plants. Meters, where they exist and are functioning, are generally limited to one per apartment building reducing the effectiveness of increased tariffs in reducing water demands; many of the water fixtures in these buildings leak or do not work, and hence customers often cannot effectively control water losses or reduce water use in response to higher water charges. Unnecessary losses are further increased by the lack of modern leak detection equipment and programmes, and deferred maintenance and investment in the distribution system.
- **Commercialization of water services will have an uncertain impact on revenues** - past rates of revenue collection based water tariffs were very high since the small water charges were paid to the housing association or the municipality by consumers as a part of the rent, were not proportional to water use, and were then paid directly to the water enterprise by the housing association or the municipality. The degree of accountability needed for efficient operation of water services in the future will require a more direct relationship between the water enterprise and the consumer who, in that case, is likely to demand a higher standard of service commensurate with higher tariffs, a reliable meter to accurately measure household water consumption, and better service lines and fixtures to prevent unnecessary losses; and, if these measures are implemented, there is ample experience to demonstrate that water consumption will fall significantly as tariffs rise.
- **Operating costs are high** - high operating costs reduce net revenues, and hence, the capacity of the water company to finance all forms of needed capital investment including new wastewater treatment, as well as replacement, renovation, and modernization of key water system components. Many water enterprises are therefore caught in a vicious circle of rising operating costs, under-funded maintenance, deferred replacement and modernization, lower efficiency, and consequently higher operating costs that can only be worsened by over-investment in new wastewater

treatment works. Reduced energy and material use would be obvious ways of reducing operating costs. Reduced water consumption would also reduce operating costs by reducing the volume of water to be produced, treated, and distributed, and by increasing the concentration of the pollution load to be treated.

- **Water systems are deteriorated and inefficient** - maintenance has not been effective and in many cases under-funded with the result that needed replacements and modernization have been foregone; as a consequence many system components are in a seriously deteriorated state and are inefficient, particularly in regard to energy consumption whose cost is rising faster than nearly all other costs (recent water tariff increases, despite their draconian magnitude, have barely kept pace with increases in energy and wage costs).
- **Inadequate pre-treatment of industrial wastewaters** - In many cases, large volumes of poorly treated, partially treated and untreated industrial wastewaters of highly variable character are discharged with limited monitoring and irregular enforcement of environmental standards. This results in poor treatment plant performance, especially disruptions of processes when shock loading occurs, and contamination of sludge, rendering it unfit for reuse in agriculture or silviculture.
- **Water tariffs have been raised but not high enough** - while the experience varies greatly across the region, in some of the “hot spots” tariffs have been raised 10 to 100 times since 1988, but even these new levels in many cases only keep pace with inflation and do not raise revenues high enough to mobilize sufficient resources for needed investment.
- **Proposed wastewater treatment project is not affordable, and may not be the right project at this point in time** - in many cases the proposed wastewater treatment project is far too large for the financial capacity of the water enterprise, the municipality, and the country in terms of both capital investment and operating costs; little thought has been given to phasing the investment over an appropriate time period, nor to the other critical capital needs of the water system that will have to be met while the municipality and the water customers are still paying for the construction and operation of the treatment plant.
- **Lack of a clear management and institutional framework** - this problem is very important because in most cases it is unclear both legally and organizationally who the borrower or implementor of the project will be; while in many cases there is a former state enterprise who has been operating the water system, these enterprises have never been responsible for financing capital investments, and the present legal framework leaves unclear who will have that authority in the future;
- **Practical emission standards are needed.** Increased flexibility is need on the part of environmental regulatory authorities who set water quality standards and emission limits to allow adequate time to comply with standards based on practical economic and financial feasibility criteria. Facilities should be administrated in such a way that it is possible to develop

in cooperation with regulatory authorities a phased programme for implementation of improvements to achieve water quality standards.

The Emerging Investment Approach. The schematic project plans presented in the pre-feasibility studies and the cost estimates summarized in the Programme are indicative of the total investment cost of the environmental management systems that will be developed over the long term. Hence, the issue of immediate concern is how these investments can be phased practically and sequenced over time and which components should be given the highest priority. The latter issue depends on many factors, but, the over-riding concern in the Baltic Region is the establishment of efficient and financially sound water companies that can provide effective and sustained management of the municipal water and wastewater system. As a consequence, the first investment package in this long-term Programme must provide an effective instrument to reform and restructure existing water companies as well as provide for the critical first stage improvements and expansion of the water and wastewater system. In broad terms this first investment package has three components:

- **Invest in critical infrastructure** - a modest programme of investment in elements of the water and wastewater system needing replacement, modernization, expansion. Priorities are based on consideration of the need to improve operating efficiency, reduce operating cost, and improve and expand service, but above all the programme must be practical and affordable in terms of economic and financial viability. Investment in wastewater treatment will be phased depending on the present system. In some cases only primary treatment will be constructed or improved, and other key components of the treatment plant such as the sludge disposal facilities may have to be improved and upgraded before additional major investments can be undertaken. In such a phased approach, a master plan that foresees the necessary space and lay-out for possible future expansion needs is essential.
- **Implement a commercialization programme to improve the financial condition of the water company and mobilize resources for investment** - These actions include bringing water tariffs in line with capital and operating needs, reducing water consumption, and reducing operating costs. Improvements in financial management systems will be needed as well as investments in:
 - a long-term programme of meter installation, and improvements in service connections and building water fixtures;
 - a short-term sustained programme to reduce operating costs including investments in modern energy and material efficient equipment, control systems, and procedures.
- **Develop a new institutional and management framework of water and wastewater services** - The existing state owned water enterprises are to be transformed into self-financing and self-managed water utilities or companies in which the municipality may or may not have a substantial financial and ownership interest. This new company will need modern management systems and staff training.

These three components constitute an integrated and phased programme that will lead to efficient and sustained improvements in municipal environmental management. Because of the current weak state of municipal and water enterprise finances, and severe central government budget constraints developing a feasible financial plan or structure to implement such a programme requires the innovative and imaginative combination of many sources of project and project related financing.

GLOSSARY

CASH FLOW	The flow of money payments to and from a firm.
COMMERCIAL BANK	Privately owned banks operating cheque or current accounts, receiving deposits, taking in and paying out notes and coin, and making loans.
COMMERCIAL TERMS	see Market Terms
CONCESSIONAL FUNDS	Monies lent out at less than the market rate of interest.
CREDIT RISK	The probability that a borrower will not repay a lender according to the agreed upon terms.
ECONOMICALLY VIABLE	An economic activity operating in a market of other buyers and sellers that generates revenues sufficient to cover all the fixed and variable costs of production and a profit large enough to induce the firm to remain in the market, is viable.
ECU	European Currency Unit - a weighted average of the currencies of the member countries of the Commission of European Communities. The rate of 1 ECU = US\$1.20 was used for preparation of this report.
EQUITY	The residual value of a company's assets after all outside liabilities, other than to shareholders, have been allowed for. Equity is the amount left for the borrower if the asset is sold and the lender repaid.
EXPORT CREDITS	Preferential treatment, often in the form of short-term loan financing at preferential rates to the purchaser, for firms that sell their products abroad, compared to firms that sell in the home market.
DEBT	A sum of money or other property owed by one person or organization to another.
DEBT SERVICE	A payment of interest on a debt that is an amount in addition to the debt amount itself.
FINANCIAL INTERMEDIARY	Institutions which hold money balances of, or which borrow from, individuals and other institutions, in order to make loans or other investments. They serve the purpose of channelling funds from lenders to borrowers.
GDP	Gross Domestic Product - a measure of the total flow of goods and services produced by the economy over a specified period, normally a year.

GNP	Gross National Product - GDP plus the income accruing to domestic residents from investment abroad less income earned in the domestic market accruing to foreigners abroad.
GRANT FUNDS	Monies given to an individual or institution with no expectation or requirement of repayment at any time in the future.
GUARANTEES	A commitment, often from a national government, to repay a loan in the event that the Borrower is unable to do so.
JOINT VENTURES	Economic activities undertaken by partners with joint involvement in the financial, managerial and production process aspects of the firm(s); partners may be from different sectors e.g. private firms, government ministries and financial institutions.
MARKET TERMS	The interest rate, maturity structure and other relevant characteristics of a loan that result from the interaction between potential lenders and potential borrowers in a market. The nature of competition and pricing is determined by the structure of the market, most importantly the number and size of the buyers and sellers involved in the market.
RECURRENT COSTS	These are costs that vary directly and predictably with the rate of output, e.g. labor costs, raw materials costs, energy costs. They are also known as variable costs and operating costs .
REVENUES	Gross income accruing to a firm through the sale of its output.
SUBSIDIES	Grants to suppliers of goods and services - a subsidy has the object of keeping prices below the cost of production.
TRUST FUNDS	Money or property vested with an individual or institution to administer in the interest of others.