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PROJECT PERFORMANCE ASSESSMENT REPORT

ESTONIA

HAAPSALU AND MATSALU BAYS ENVIRONMENTAL PROJECT
LOAN 3870-ES

July 1, 2003

Sector and Thematic Evaluation Group
Operations Evaluation Department

CURRENCY EQUIVALENTS (ANNUAL AVERAGES)

Currency Unit = Estonian Kroon (EEK)

1995	US$1.00	EEK 12.66
2000	US$1.00	EEK 18.20

ABBREVIATIONS AND ACRONYMS

BOD	Biological Oxygen Demand
CEM	Country Economic Memorandum
ECA	Europe and Central Asia Region
EMC	Environmental Management Component
ERR	Economic Rate of Return
EU LSIF	European Union Large Scale Infrastructure Facility
EU-PHARE	European Union Assistance Program to Eastern and Central Europe
FRR	Financial Rate of Return
HELCOM	Helsinki Commission
ICR	Implementation Completion Report
JCP	Baltic Sea Joint Comprehensive Environmental Action Program
MOE	Ministry of Environment
MTR	Mid-term Review
O&M	Operations and Maintenance
OED	Operations Evaluation Department of the World Bank
PCD	Project Concept Document
PIU	Project Implementation Unit
PPAR	Project Performance Assessment Report
QAG	Quality Assurance Group
SAR	Staff Appraisal Report (a predecessor of the PAD)
TA	Technical Assistance
WTP	Willingness to pay
UFW	Unaccounted for Water
WWF	World Wide Fund for Nature
WWTP	Wastewater Treatment Plant

FISCAL YEAR

Government: January 1—December 31

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OED Mission: Enhancing development effectiveness through excellence and independence in evaluation.

About this Report

The Operations Evaluation Department assesses the programs and activities of the World Bank for two purposes: first, to ensure the integrity of the Bank's self-evaluation process and to verify that the Bank's work is producing the expected results, and second, to help develop improved directions, policies, and procedures through the dissemination of lessons drawn from experience. As part of this work, OED annually assesses about 25 percent of the Bank's lending operations. In selecting operations for assessment, preference is given to those that are innovative, large, or complex; those that are relevant to upcoming studies or country evaluations; those for which Executive Directors or Bank management have requested assessments; and those that are likely to generate important lessons. The projects, topics, and analytical approaches selected for assessment support larger evaluation studies.

A Project Performance Assessment Report (PPAR) is based on a review of the Implementation Completion Report (a self-evaluation by the responsible Bank department) and fieldwork conducted by OED. To prepare PPARs, OED staff examine project files and other documents, interview operational staff, and in most cases visit the borrowing country for onsite discussions with project staff and beneficiaries. The PPAR thereby seeks to validate and augment the information provided in the ICR, as well as examine issues of special interest to broader OED studies.

Each PPAR is subject to a peer review process and OED management approval. Once cleared internally, the PPAR is reviewed by the responsible Bank department and amended as necessary. The completed PPAR is then sent to the borrower for review; the borrowers' comments are attached to the document that is sent to the Bank's Board of Executive Directors. After an assessment report has been sent to the Board, it is disclosed to the public.

About the OED Rating System

The time-tested evaluation methods used by OED are suited to the broad range of the World Bank's work. The methods offer both rigor and a necessary level of flexibility to adapt to lending instrument, project design, or sectoral approach. OED evaluators all apply the same basic method to arrive at their project ratings. Following is the definition and rating scale used for each evaluation criterion (more information is available on the OED website: http://worldbank.org/oed/eta-mainpage.html).

Relevance of Objectives: The extent to which the project's objectives are consistent with the country's current development priorities and with current Bank country and sectoral assistance strategies and corporate goals (expressed in Poverty Reduction Strategy Papers, Country Assistance Strategies, Sector Strategy Papers, Operational Policies). *Possible ratings:* High, Substantial, Modest, Negligible.

Efficacy: The extent to which the project's objectives were achieved, or expected to be achieved, taking into account their relative importance. *Possible ratings:* High, Substantial, Modest, Negligible.

Efficiency: The extent to which the project achieved, or is expected to achieve, a return higher than the opportunity cost of capital and benefits at least cost compared to alternatives. *Possible ratings:* High, Substantial, Modest, Negligible. This rating is not generally applied to adjustment operations.

Sustainability: The resilience to risk of net benefits flows over time. *Possible ratings:* Highly Likely, Likely, Unlikely, Highly Unlikely, Not Evaluable.

Institutional Development Impact: The extent to which a project improves the ability of a country or region to make more efficient, equitable and sustainable use of its human, financial, and natural resources through: (a) better definition, stability, transparency, enforceability, and predictability of institutional arrangements and/or (b) better alignment of the mission and capacity of an organization with its mandate, which derives from these institutional arrangements. Institutional Development Impact includes both intended and unintended effects of a project. *Possible ratings:* High, Substantial, Modest, Negligible.

Outcome: The extent to which the project's major relevant objectives were achieved, or are expected to be achieved, efficiently. *Possible ratings:* Highly Satisfactory, Satisfactory, Moderately Satisfactory, Moderately Unsatisfactory, Unsatisfactory, Highly Unsatisfactory.

Bank Performance: The extent to which services provided by the Bank ensured quality at entry and supported implementation through appropriate supervision (including ensuring adequate transition arrangements for regular operation of the project). *Possible ratings:* Highly Satisfactory, Satisfactory, Unsatisfactory, Highly Unsatisfactory.

Borrower Performance: The extent to which the borrower assumed ownership and responsibility to ensure quality of preparation and implementation, and complied with covenants and agreements, towards the achievement of development objectives and sustainability. Possible ratings: Highly Satisfactory, Satisfactory, Unsatisfactory, Highly Unsatisfactory.

Contents

Principal Ratings:

Haapsalu and Matsalu Bays Environmental Project

	*ICR**	*ES**	*PPAR*
Outcome	Satisfactory	Satisfactory	Satisfactory
Sustainability	Likely	Likely	Likely
Institutional Development Impact	Substantial	Substantial	Substantial
Bank Performance	Satisfactory	Satisfactory	Satisfactory
Borrower Performance	Satisfactory	Satisfactory	Satisfactory

* The Implementation Completion Report (ICR) is a self-evaluation by the responsible operational division of the Bank. The Evaluation Summary (ES) is an intermediate OED product that seeks to independently verify the findings of the ICR.

Key Staff Responsible

Project	*Task Manager*	*Division Chief/ Sector Director*	*Country Director*
Appraisal	Stephen Lintner	Geoffrey Fox	Basil Kavalsky
Completion	Inesis Kiskis	Jane E. Holt	Michael C. Carter

Preface

This is the Performance Assessment Report (PAR) for the Haapsalu and Matsalu Bays Environmental Project, costing US$8.4 million, that was approved in April 1995 for an IBRD loan of US$2.0 million and confinancing with US$3.85 million from the EU, Denmark, Finland, Sweden, World Wide Fund for Nature and the Ramsar Convention Bureau. The project closed in June 2000 one year behind schedule.

This report is based on the Implementation Completion Reports (ICRs) prepared by the Europe and Central Asia Region, the Memoranda and Recommendations of the President, Staff Appraisal Reports, loan documents, project files, and discussions with Bank staff. An Operations Evaluation Department (OED) mission visited Estonia and met stakeholders in Finland, Sweden and Denmark in July 2002 to discuss the effectiveness of the Bank's assistance with the government, development and financing partners, project implementing agencies, private sector agencies, and non-governmental organizations. The cooperation and assistance of central government officials, management, staff of the Haapsulu water utility and Matsalu State Nature Reserve, non-governmental stakeholders and other interested parties are gratefully acknowledged.

This PPAR is part of a regional assessment that included similar projects in Latvia and Lithuania. It provides an assessment of the outcome of the Bank's assistance, in partnership with several confinanciers, to enable Estonia to reduce pollution to the Baltic Sea and reform a water and wastewater utility.

Following standard OED procedures, this draft PAR was sent to the borrower and cofinanciers for comments before it was finalized. No comments were received from them. In accordance with the Bank's disclosure policy, the final report will be available to the public following submission to the World Bank's Board of Executive Directors.

Summary

The **Haapsalu And Matsalu Bays Environmental Project** costing US$8.4 million was approved in April 1995 for a loan of US$2.0 million. It was cofinanced with US$3.85 million by the EU, Denmark, Finland, Sweden and World Wide Fund for Nature. The project closed in June 2000 - one year behind schedule.

The project was formulated following agreement under the 1992 Baltic Sea Joint Comprehensive Environmental Action Programme (JCP). This identified a series of priority actions for the control of point and non-point source pollution draining to the Baltic Sea and measures to improve water quality management of surface and groundwater, and support management of coastal lagoons and wetlands. The main project objective was to reduce water pollution discharge to the Baltic Sea at two pollution "hot spots." These were Haapsalu, a town of 14,000 on Estonia's west coast, and the watershed draining into Matsalu Bay, an environmentally important wetlands twenty kilometers south. Sustainable pollution reduction was to be achieved through improvement in the quality, reliability and cost efficiency of water supply and wastewater disposal and increases in water and wastewater tariffs, thus making it financially viable. Significant technical assistance and twinning arrangements via cofinancing partners supported the modernization of the utility's management to increase operational efficiency. Secondary objectives were to support implementation of the Matsalu State Nature Reserve and to improve planning and management of conservation programs and eco-tourism.

The outcome was satisfactory. Relevance was substantial given the agreement to clean-up the Baltic Sea under the JCP, Estonia's drive for EU accession, harmonization with EU environmental standards and dwindling public resources to subsidize inefficient utilities. Institutional development was substantial although there are still political barriers to establishing economic water tariffs. The project supported the government's devolution of water and wastewater service provision to the Haapsalu Water Company (HWW), an autonomous and commercially-viable joint-stock company owned by the municipality, and successfully improved HWW's operation, maintenance and financial management. As a result, the quality of water and service provided to consumers increased, and the quality of treated wastewater effluent achieved the appraisal targets for discharge to the Baltic Sea. Other environmental management activities supported by other donors achieved satisfactory outcomes although those dealing with conservation of biodiversity continue to rely on large central subsidies. It is unclear how these subsidies will continue when EU accession takes place. An integrated coastal zone management framework and plan was developed, but problems remain because of the strong separation of sectoral, local agencies and regional planning organizations, and because reliance on external grant-funded experts may have lessened local ownership.

The financial rate of return for the Haapsalu water and wastewater component was only 4.5 percent because of higher than anticipated debt servicing (due to exchange rate appreciation of a single currency loan) and an unexpected decline in water demand following post-Soviet industrial closure and higher water charges. Despite this, the economic rate of return is likely to be higher when environmental benefits are included and thus efficiency is rated modest. High borrower ownership and regional stakeholder

support from EU and Nordic development partners ensures sustainability which is rated likely.

Borrower performance is rated satisfactory. While the Bank's performance is also rated satisfactory, it should be noted that total supervision costs (which included significant use of trust funds) were almost twice the Bank's average.

There are three lessons from this experience:

- Regionally-sponsored environmental initiatives in response to inter-governmental action plans provide good opportunities for the Bank to exercise its comparative advantage in leveraging institutional reform through targeted lending. When linked with grant funding from bilateral development partners it provides a powerful and influential lobby for reform.

- When designing and implementing regional environmental initiatives and their specific projects, significant benefits can be achieved by addressing infrastructure investments, environmental management activities and capacity building in an integrated manner. Multiplier effects will be achieved by careful attention and support for development of local institutions and their human resources.

- It is important to fully understand the interests and institutional capabilities of the various local stakeholders, specifically for community based activities, and to factor in sufficient time and resources to build a consensus for reform and agreement on issues and longer-term objectives. Care should taken to avoid project activities being driven by external partners and which can undermines local ownership.

Gregory K. Ingram
Director-General
Operations Evaluation

1. Background

1.1 Estonia is the most northerly and smallest of the Baltic Countries with a population of 1.4 million and borders Russia on the east and Latvia on the south. Significant economic and institutional reform followed the 1988 declaration of sovereignty by the Estonia's Supreme Soviet, reform that was accelerated by restoration of independence in 1991. At that time, the Bank's overall strategy in Estonia was to support the country's efforts to accelerate structural reforms leading to a full transition to a market-based economy and support efficient investment in high priority sectors. Estonia also aspired to membership of the European Union, and much of its reform agenda involved harmonization of environmental policies and quality with EU norms. The project being assessed is the sixth, and at US$2.0 million, the smallest Bank loan to Estonia.[1] It is the third in a program of four environmental institution-building and clean-up for the Baltic states.[2]

1.2 Haapsalu and Matsalu are two bays located on the west coast of Estonia, and the regional town of Haapsalu, a former Soviet air base, has a population of about 12,000. Haapsalu was famous for its curative marine mud-spa. In the 19th Century it was frequented as a summer resort by the Tsar of Russia and other notables such as composer Pytor Ilyich Tchaikovsky. In Soviet-times access to the coastal area was severely restricted, Haapsalu became a major military airbase and was the last town in Estonia to receive basic sewage treatment which served only 30 percent of the population. Matsalu Bay is the biggest nature reserve in Estonia and includes unique wetlands of international importance to the East-Atlantic flyway listed under the Ramsar Convention.

1.3 At the time the project was prepared, untreated or inadequately treated sewage had heavily polluted the Haapsalu bay causing a ban on swimming and contamination of therapeutical muds from the bay. At Matsalu, polluted drainage from agricultural and small settlements caused eutrophication and organic enrichment resulted in the expansion of reed beds which was bringing about damaging changes to the Bay's ecology.[3] Poor infrastructure restricted access and limited tourism potential. Both areas needed to strengthen environmental management institutions and organizations. These problems hampered government's attempts to reintegrate this previously semi-closed region into the national economy, reestablish tourism, harmonize environmental quality with EU norms, and meet commitments under the Helsinki Convention.

1.4 As a contracting party to the Helsinki Convention, the Government agreed to implement national programs to clean-up the Baltic Sea under the Joint Comprehensive Environmental Action Program (JCP) launched at Ronneby, Sweden in 1990. The program was devised to restore the Baltic Sea to a sound ecological balance, support the objectives of the

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1. Earlier loans were for general rehabilitation ($30 million, 1992); highway maintenance ($12 million), district heating ($38.4 million), and financial institutions development ($10 million) all in 1994; and health ($18 million) in 1995.

2. The other environmental projects were: Latvia-Liepaja and Lithuania-Klaipeda signed December 1994; this project April 1995 and Lithuania-Siauliai December 1995.

3. Phosphorus is the primary cause of eutrophication of rivers and water bodies and derives from organic matter, cleaning agents and fertilizer which feed phytoplankton and higher order water flora.

Helsinki Convention and provide a framework to guide implementation by each state.[4] Its strategic approach was approved at the 1992 Helsinki Diplomatic Convention. Arrangements for implementation in the countries of the Baltic Sea drainage basin were supported by national and local governments, the EU, six bilateral agencies, five international financial institutions (IFIs) – including the Bank – and the World Wide Fund for Nature and were discussed at Gdansk, Poland in 1993. Haapsalu and Matsalu Bays were two of 12 Estonian pollution "hot spot" identified for priority clean-up under the JCP where significant demonstration effects could be reaped at low cost.[5]

2. The Project

2.1 Objectives. The overall aim of the project was to support Government of Estonia's decentralization of responsibility for environmental services to municipal governments, reduce the State's role in the economy by strengthening local authorities, and to restructure and modernize the water and wastewater sector. The global objective was to strengthen the Ministry of Environment's capacity to coordinate and implement environmental projects. Six specific objectives were to be achieved through two main components, Table 1.

Table 1: Project Objectives and Cost at Appraisal

Objective	Components	Cost, US$ millions	
		Appraisal	Ex-post
1. Reduce discharge of partially treated and untreated wastewater to the Baltic Sea	**Water and Wastewater Improvement Component**		
2. Restore and enhance the surface and groundwater quality	Rehabilitation and expansion of the Haapsalu water and wastewater system and measures to control industrial discharges	4.18	5.42
3. Improve the quality, reliability and cost efficiency of water supply and sanitation services	Training and twinning to support institutional strengthening to assist in establishing an autonomous and financially independent water and wastewater utility at Haapsalu	0.42	0.49
4. Improve operational efficiency and management systems in Haapsalu			
5. Promote management of point and non-point pollution from the catchment area of Matsalu Bay	**Environmental Management Component**		
	Upgrade wastewater services at Lihua and other small settlements and measures to reduce surface and groundwater pollution form agricultural runoff	0.58	1.37
6. Promote environmentally sustainable management and development of ecologically unique and sensitive areas around Matsalu and adjacent coastal areas	Technical and financial support for the implementation of a management plan for the Matsalu State Nature Reserve focusing on increasing access for domestic and foreign visitors	0.96	1.65
	Price and Physical Contingencies	$1.88	-
	Total Cost (plus Value Added Tax of $0.34 million)	$8.03	8.93

4. Belarus, Czech Republic, Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland, The Russian Federation, Slovak Republic Sweden and Ukraine.

5. Helsinki Commission. 1993. The Baltic Sea Joint Comprehensive Environmental Action Program, Table 5-3. Baltic Sea Environmental Proceedings. No. 48.

2.2 Although there were cost savings on works carried out during implementation compared with appraisal estimates, overall costs increased because Haapsalu Water Works carried out additional works to extend the water supply and sewerage network. As a result, at the end of the project water supply coverage rose for 66 to 90 percent of the population.

2.3 Apart from the Bank, most of the project financing by the other seven partners was in the form of grants, Table 2.

Table 2: Financing Arrangements (US$ millions)

Financier	Type of Finance	Waste Water Improvement	Environmental Management	Total
IBRD Loan	Loan	2.00		2.00
Swedish International Development Agency	Grant	1.60		1.60
Swedish Environmental Protection Agency	Grant		0.33	0.33
Ministry of Environment, Finland	Grant	0.80	0.22	1.02
Ministry of Environment, Denmark	Grant		0.60	0.60
EU (PHARE)	Grant		0.86	0.86
Government of Estonia & Municipality of Haapsalu		1.85	0.67	2.52
Total		**6.25**	**2.68**	**8.93**

3. Implementation

3.1 The lead agency, the Ministry of Environment (MOE), adopted a decentralized approach to project implementation retaining only essential oversight activities including liaison and approval of terms of reference. While MOE directly managed the environmental activities, management of the water and wastewater management improvement components was devolved to Project Implementation Unit established within the Haapsalu Water Works (HWW), a 100 percent municipally-owned, limited joint stock company responsible to the municipalities for service standards.[6] However, at the start both enterprise and municipalities were new to market-oriented operational and financial management practices as evidenced by the low level of capital and labor productivity which was 20-30 percent of international best practice.[7] A twinning agreement between HWW and a Swedish water utility, Haninge Gatukontoret MWW, financed by Sida was signed in October 1995.

3.2 The project took a year to become effective (April 1996) because of problems with the Subsidiary Loan Agreement. At negotiations it was agreed that the Bank's loan proceeds were to be used only by HWW. The Ministry of Finance, however, later insisted that there

6. In Soviet times, municipal water and wastewater services were provided by the state-owned water and wastewater administration Eesti Vesi but in 1991 the management of these enterprises was delegated from central to municipal governments. In January 1, 1995, the Estonian government passed ownership of all water and wastewater assets to Haapsalu Town Government and they, in February 1995, give ownership of these assets to the municipal enterprise Haapsalu Water Waterworks which was converted, in December 1996, to a joint stock company whose shares were wholly owned by the municipality.

7. World Bank. Terms of Reference: *Management Development and Supervision Support for the Baltic Water Utilities.* August 1995.

was no provision in Estonian Law to lend to a pseudo-private sector entity and proposed that Haapsalu Town Government should receive the loan with signatory powers vested in the Mayor. After several refusals by the Bank, eventually it was agreed that Haapsalu Town Government would be a loan guarantor for HWW.

3.3 Implementation was generally smooth even though there were delays which required an extension of closing by one year to June 2000. Initially, procurement posed problems because of the unfamiliarity with Bank requirements on tendering (despite training), but most of these problems were resolved after the National Procurement Agency was established in 1996 and enabling laws enacted in 1997. The complex mix of bilateral grants, tied-aid, and untied Bank loans created substantial administrative problems for the six Estonian ICB contractors who subcontracted supply of electro-mechanical equipment to Swedish and Finnish contractors, an arrangement that took "4-5 months of infighting."[8] Despite this, civil works were completed on time and within budget although there were problems with sand pumping due to faulty construction by the local contactor, and incorrect tolerances in some locally-built plant for electro-mechanical equipment. While the twinning arrangement delivered on technical issues, HWW felt they had little to learn from the partner on financial or management issues because, unlike the municipally-managed Haninge partner, they operated on commercial principles. Despite this, early in the project the twinning partner became a "technical trouble-shooter" in addition to their training role because it took time for HWW's staff to throw off "one-man, one-job" syndrome prevalent in Soviet-times.

3.4 On the environmental management component, costs marginally exceeded appraisal estimates. The Matsalu catchment management activities that were grant-financed by Denmark and Sweden were increased to include installation of seven small wastewater treatment plants and a pilot program implemented by the Swedish Agricultural University to reduce nutrient run-off from farms.[9] Within the water and wastewater component, only seven percent of the budget for international consultants was utilized and that for the tariff study. The US$0.44 million saved plus savings of US$0.22 million on the construction of the wastewater treatment plane and US$0.16 million on smaller equipment was used to further extend the sewerage and water supply network which now connects 90 percent of the population.

3.5 The only real problem during implementation was coping with the appreciation of the US$ against the Estonian Kroon. Instead of staying with the Deutsch Mark (to which the Koon was pegged), consistent with the other Bank loans, the government under the guidance of the Ministry of Finance decided to take the loan in US$. At appraisal the US$1.00 was equal to EEK 12.66, on completion this had risen to EEK17.00. The difficulties this caused for loan repayment were enhanced by reduced income from lower than anticipated water sales. In consequence, HWW renegotiated its subsidiary loan from the Ministry of Finance and signed a new deal in March, 2002.

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8. Sida 2000. Three Water And Environment Projects In Estonia, Latvia And Lithuania, Sida Evaluation Report 00/41.

9. At the request of the Estonians and with additional support of the donors.

4. Results

Environmental Quality Was Substantially Improved.

4.1 **Pollution was Reduced.** The extension and rehabilitation of sewerage and pumping stations, and commissioning of the WWTP in late 1998, enabled reduction of pollutant volume in the discharged effluent to Haapsalu Bay to below target levels. Total volumetric Biochemical Oxygen Demand (BOD) fell by more than 97 percent from 271 tons/year in 1994 to 7.4 tons/year in 1999 and has remained around that level. Total Nitrogen (N) released was reduced from 70 to 23 tons/year, while Phosphorus (P) discharges fell by over 90 percent to 0.9 tons/year. While no standards for concentration of these pollutants in the WWTP effluent were specified at appraisal, BOD and P were better than HELCOM standards, but N concentrations are about twice the acceptable levels.[10] However, given the much reduced volume of effluent due to lower demand for water and closure of military bases and industry, this is a fairly minor problem on a regional or national scale. Even so, the MoE is concerned about meeting its HELCOM obligations and EU standards. In mitigation, HWW discharges its effluent into reed beds that provide a biological buffer to polluting the bay.

4.2 Sludge disposal works were not included in the project at appraisal when a strict prioritization based on Haapsalu's priority needs and loan repayment capacity was carried out. Fortunately, HWW came up with an innovative solution and solved the problem.[11] As a senior government official stated: "the cleaned-up bay does not smell any more because of the significantly less pollution; Swedish and Finnish pensioners are attracted to live in Haapsalu and the number of tourist is steadily rising."[12] A follow-up survey of beneficiaries by the Bank in 2002 found that 58 percent of respondents thought that the WWTP had improved environmental conditions in the Haapsalu area (32 percent "didn't know").[13]

4.3 Measures supported by the project to control point and non-point pollution have contributed to improved quality of the River Kasari catchment and reduced pollution to Matsalu Bay. But it is likely that the impact of project-induced infrastructure improvements is small in comparison to the long-term effects of reduced use of fertilizer in agriculture and less intensive land use (Figure 1), and successful project-sponsored implementation of the catchment area management plan.

4.4 During appraisal, it was anticipated that the focus of sewage and wastewater treatment at secondary point sources would be on 'ecological engineering.' However, due to

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10. HELCOM standard for BOD is 15 mg/l, project achieved 8.7 mg/l; P standard is 1.5 mg/l, project achieved 0.9 mg/l; N standard is 12 mg/l, project achieved 26 mg/l.

11. Sludge is subjected to a two-stage treatment. After thickening it is composted with peat and sawdust for a year from whence it is sold as fertilizer. Thus 3,000 m3/year of sludge produces 600-700 tons of saleable fertilizer. At the time of assessment, HWW was unaware of any soil toxicity hazards from prolonged use even though industrial waste is also processed at the WWTP.

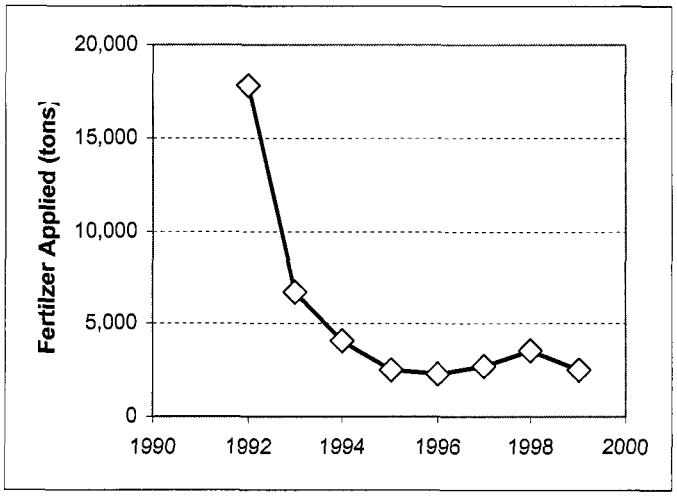
12. Dr. Allan Gromov, Deputy Director-General, Ministry of Environment.

13. Valatka, Simonas, and Romualdus Lenkaitis. 2002. Estimated Benefits for Water Quality and Wastewater Treatment and Recreational Improvements in the Baltic States. The World Bank. Lithuania.

the local preferences, only conventional wastewater treatment plants were constructed. The project assisted installation of a sewage works in Lihula, one of the two small towns in the catchment. and provided wastewater treatment works to six of the 10 smaller settlements – of these five were operational at the time of OED's evaluation and the sixth at Kirbla was out of commission because of a leaking sewerage system. There is concern in MOE that the small WWTP need better management than they are currently receiving – and a solution proposed is to place all small facilities under HWW's control. Currently, O&M requires a 50 percent subsidy from the center, and the Centre for Ecological Engineering at Tartu University estimates that O&M costs (particularly electricity for pumping) could be significantly reduced if ion filters were used to scrub out P and N.

4.5 **Systematic Management of Non-Point Pollution Has Yet To be Achieved.** The experiment to control non-point pollution and manage agricultural wastes in former state farms is not yet complete. Government's water quality indicators[14] for the lower River Kasari show that Phosphorus levels improved by two classes from class IV 'bad' to class II 'good' between 1994 and 1999 while Nitrogen remained unchanged at "good'. The impact of these improvements on the quality of the Baltic Sea – particularly on the growth of zooplankton - is difficult to discern because of the masking effects of salt water exchange with the North Sea, higher than average surface water temperatures in recent summers (ref 12 *op cit.*,) and continued polluted discharge to the Gulf of Finland and Gulf of Riga.

Figure 1: Estonian Use Of Mineral Fertilizer Sharply Declined



Source: Estonian Environmental Information Centre (2001)

4.6 **Matsalu State Nature Reserve Management Plan Was Successfully Implemented.** The project's primary objective to maintain coastal wetland eco-systems and habitats in a sustainable way over 48,000 ha was substantially achieved with few shortcomings.[15] The Matsalu State Nature Reserve (MSNR) is actively managed from its renovated headquarters building and nature museum at Penijõe Manor, and receives considerable grant support from local and international environmental agencies and government agricultural subsidies because of its status–it was the only Ramsar site in the former Soviet Union. Currently, the total staff of 21 (down from 70 pre-project) is on the MoE budget which is supplemented with donor's funds to support special activities and

14. Estonian Environment Information Center. 2001. *State Of Environment In Estonia On The Threshold Of The XXI Century*. Tallin.

15. WWF Sweden supervised the Matsalu management plan which then was used as a base for the Matsalu Integrated Coastal Management plan under the auspices of HELCOM. The continued implementation of the plan has gained support from WWF Sweden and Sida,under the Väinameri project.

projects – for example the World Wide Fund for Nature – Finland supports monitoring of white-fronted geese. Meeting management plan objectives to build support for conservation activities within the community, MSNR has involved four municipalities and more than 10 village societies and local schools in activities such as open days, cleaning and maintaining cut-back around holiday homes. An environmental newspaper is produced as are multi-lingual guidebooks and maps. Project funds enabled construction of eight nature and wildlife observation towers throughout the reserve, and a change in the Tourism Law (2001) put tourism firmly on the agenda. In consequence, the number of visitors – a third of them foreign - rose from 4,600 in 1999 to over 6,000 in 2001 and this significantly benefited the local economy though bed-and-breakfast accommodation.

4.7 **High Biodiversity Ecosystems Are Being Maintained.** Traditionally, grazing and mowing, intensified in Soviet-times for dairy production, had maintained a unique semi-natural system of meadows, coastal wooded meadows and wetland meadows. With the substantial post-independence decline in agriculture, lessening of these controls on the landscape led to encroachment of scrub and bush, loss of meadowland and a decline in habitats for threatened species. The project provided tractors and mowing equipment which supplemented subsidies for livestock and mowing.[16] Together, these measures increased mowed wetland meadows from zero in 1995 to 2,500 ha in 2002 while grazed coastal meadows accounted for another 1,135 ha. About 100 ha of cleared woodland meadows are under demonstration. Several initiatives to reintroduce sheep and cattle on a large-scale have met with mixed success because of their high cost, restricted local markets for produce, and an uncertain future. Shortcomings identified by Estonian stakeholders are that the speed to implement the management plan and active intervention by foreign NGOs displaced local capacity building and some ownership – and the reliance on subsidies to maintain the meadows may not be sustainable in the longer-term.

Operational Efficiency And Management Of Haapsalu Water Company Was Improved

4.8 HWW is now a modern and well-run utility operated on commercial principles with a long-term strategic plan – a marked improvement since the early 1990s. Excellent and productive partnership with the Municipality of Haapsalu, coordination with MOE on regional environmental emission control and the willingness of the Ministry of Finance to provide bridging finance because of the currency-related loan repayment problem (para 3.5) means that its long term future is assured. The Project Implementation Unit used the utility's staff, and their experience has been fully internalized within the organization after project closure. Management is proactive and during project implementation used their initiative to

16. Partners sponsored study tours of locals living in the Matsalu area to Sweden where they learned about tourism, hand crafts and livestock. Three small societies formed and a handicraft for locally-produced wool is active in Lihula despite initial set-backs from predation by wolves and there are 10 sheep farms. Potential beef farmers undertook a Swedish study tour in 1997 and ten of them formed a society "keepers of semi-natural areas" based on sound ecological principles and mixed herd of Abedeen Angus, Herefords and Highland cattle are being established, the high-class breedstock being the property of the MSNR. EU (Life) has indicated that it is prepared to enter into 5-year contacts for a further 50 cattle. Some Estonian farmers privately import Limousin stock to graze the coastal marshes. While grazing helps to maintain the meadows, the small scale of the present effort requires central subsidies of the order EEK 10 million (US$0.55 million) a year. Current subsidies are EEK 650/ha for floodplain meadows, EEK 1,000/ha for coastal and EEK 2,000/ha for wooded meadows.

achieve cost savings in a number of components (Annex B1). Savings were used to extend service coverage and modernize pumping plant which led to higher efficiencies. Overall pumping costs increased, however, because of the demands of the oversized WWTP and the extended supply and sewerage system even though water sales declined (Annex B2). Billing and collection rates are high but other financial indicators are not wholly satisfactory, Table 3.

Table 3: Haapsalu Water Utility Performance Indicators

	Indicator	Target	Ex Ante 1994	Ex Post 2000
Operational	Population connected to utility water supply	-	84%	90%
	Population connected to sewerage	-	41%	90%
	Number of Staff	-	39	27
	Number of Staff per 1000 Households Connected	<5#	11.8	5.4
	Water Sales (million m3/year)	0.96	0.96	0.51
	Water Sales (liters/capita/day)	140	175	74
	Sewerage Sales (million m3/year)	0.83	0.83	0.44
	Non-Revenue Water (Production-Billings)/Production)	20%	24%	20%
	Collection Ratio (Billings/Collections)	100%	92%	99%
Financial	Average Annual Water-Wastewater Tariff $/m3	$0.56	$0.40	$1.33
	Working Ratio a/	<50%	85%	85%
	Operating Ratio b/	<85%	105%	103%

Source: SAR and ICR, reports on file and interviews with HWW management.

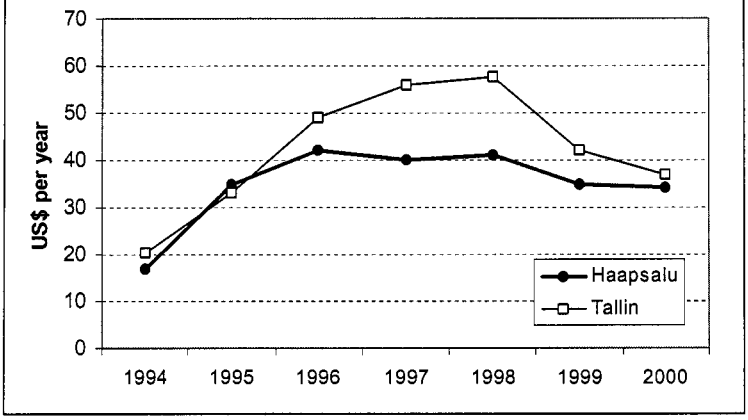
This ratio was not an appraisal target but the value shown (5) is typical best practice in developed countries

a/ Working Ratio = (total O&M + non-core costs)/Total revenues

b/ Operating Ratio = (total O&M + depreciation + interest costs)/Total revenues

4.9 Financial performance is adversely affected by the decline in water sales because of falling demand. The SAR assumed per capita demand would be 140 litres/day but actual demand fell from 170 l/d in 1994 to 80 l/d in 2001, and despite an increased customer base, overall water and WWT sales fell by more than 40 percent. This was because of a substantial decline in industrial demand following independence, and a reduction in domestic demand as householders' replaced defective sanitary ware and repaired leaks in response to higher water costs. The proportion of non-revenue water was reduced from 26 percent in 1999 to 20 percent in 2000. Staffing levels are near international norms for the number of household connections. Despite substantial real increases in the water tariff (which exceed SAR expectations but is less than that for Tallinn) this has been offset by increased debt servicing.

Figure 2: Annual Cost of Water and Sewage Services in Estonia



Source: Kari Homanen (2002)

As a result, the tariff would need to increase to EEK 38.53 (US$2.11) per cubic meter to break-even. The Municipality of Haapsalu has been unwilling to agree further tariff increases since 1999 because of political considerations even though an increase (given the reduced per capita consumption) is affordable according to generally accepted criteria (Figure 2).[17] Underlying the tariff issue is that there is not an independent national-level regulatory regime to oversee private service-providers. The present system allows municipal gatekeepers who have conflicts of interest – the current Competition Law is flawed in that respect and needs reform.

5. Ratings

5.1 The OED rating system is explained at the front of this report.

Outcome

5.2 **The outcome is rated satisfactory as it achieved most of its relevant objectives with minor shortcomings.** The overall ratings are based on the relative importance of the objectives, the basic principle being that until pollution is prevented in a sustainable manner – through financially viable wastewater treatment – none of the more global objectives is achievable. A key factor is that account has been taken of positive impacts on pollution reduction to the Baltic Sea. These ratings of objectives are elaborated in the following sections and summarized in Table 4.

Relevance

5.3 **Overall relevance is substantial.** The Bank had identified Haapsalu and Matsalu Bays as a site for a potential environmental management project during the course of field based studies conducted by staff and consultants during 1991 – 1993 in the context of the studies for the Baltic Sea Program and the environmental section of the Country Economic Memorandum. This area was viewed as a priority by the Government for environmental investments to support its reintegration after prolonged restricted access; to protect the waters of the Baltic Sea; restore recreational, health and nature based tourism; and support nature conservation.

5.4 The project was highly relevant to the concerns of the Baltic Sea littoral states as it was designed to assist Estonia to implement the Baltic Sea Joint Comprehensive Environmental Action Program (JCP, para 1.4). In the first phase of the JCP (1993-97), Haapsalu was one of ten pollution "hot-spots" identified in Estonia – although in terms of overall pollution it was at the bottom of the list.

5.5 The project was substantially relevant to the recommendations on environmental investment in the Bank's 1994 Public Expenditure Review which gave first priority to cost-

17. The ICR shows in Table 3 that the share of individual householder's income spent in Haapsalu on water and sewerage services fell from 4.4 percent in 1995 to 2.9 percent in 1999. While Estonia has no formal guidelines on expenditure caps, in Lithuania a 4 percent cap has been adopted.

effective projects which would reduce the human health hazard of air pollution, second to the reduction of water pollution from cities and towns, third to controlling pollution from landfill, toxic waste and oil shale waste, and lowest priority to biodiversity unless highly concessional loans or grants were available.[18] Fortunately, such concessional loans were available for the project's environmental management components.

Table 4: Ratings for Achievement of Major Objectives

Objectives	Relative Importance	Relevance	Efficacy	Efficiency	OUTCOME
Reduce discharge of partially treated and untreated wastewater to the Baltic Sea	1	High	Substantial	Substantial	Satisfactory
Improve operational efficiency and management systems in Haapsalu	2	Substantial	Substantial	Substantial	Satisfactory
Improve the quality, reliability and cost efficiency of water supply and sanitation services	3	Substantial	Substantial	Modest	Moderately Satisfactory
Promote management of point and non-point pollution from the catchment area of Matsalu Bay	4	High	Substantial	Substantial	Moderately Satisfactory
Promote environmentally sustainable management and development of ecologically unique and sensitive areas around Matsalu and adjacent coastal areas	5	Substantial	Substantial	Not Rated	Satisfactory
Restore and enhance the surface and groundwater quality	6	Modest	Modest	Not rated	Moderately Satisfactory
Overall Rating		**Substantial**	**Substantial**	**Substantial**	**Satisfactory**

5.6 The project was also relevant to the Bank's 1994 Country Assistance Strategy whose primary objectives were to foster economic growth to alleviate the sharp decline in average incomes, and assist with design and implementation of policies, programs and projects that would improve the living standards of those left behind in the transition process. By fostering commercialization of water and wastewater services, the project was highly relevant to implementation of government's policy to decentralize management of state enterprises and wean local government off central subsidies. In the current situation, the project remains substantially relevant. While preventative and regulatory actions account for 72 percent of the Estonia's National Environmental Action Plan 2001-2003, over 65 percent of NEAP resources are directed towards clean-up actions to accord with EU accession requirements of which wastewater treatment systems are a significant element.[19]

18. World Bank. 1994. Estonia Public Expenditure Review. Report NO. 12787-EE. July 12, 1994. On biodiversity (para 3.1): "significant investments will have to be delayed for projects that do not immediately improve human health , such as projects designed to protect and improve biodiversity, unless such projects can be funded from highly concessional loans of grants designed specifically for such projects"

19. It should be noted that the Haapsalu and Matsalu Bays Environment Project was the second of three projects the Bank supported to address urban and rural environmental issues in Estonia. The District Heating Rehabilitation Project (1994), which was the top priority concern in the energy sector, contributed to improved urban air quality during the long heating season, reduced water losses and supported the environmentally responsible use of biomass for fuel. The Agriculture Project (1996) supported improved drainage practices, wetlands management and preparation of a national wetlands inventory.

Efficacy.

5.7 **Efficacy is rated as substantial.** High government and regional stakeholder ownership ensured that actions to achieve pollution reduction objectives were successfully implemented for both components of the project. HWW is moving towards financial sustainability which demonstrates substantial institutional development and strengthening The more global objectives to restore the Baltic Sea and enhance Estonia's surface and groundwater quality and bring about integrated coastal zone management to improve the environment were too ambitious and unrealistic in the project's time frame. Given the relatively small level of investment, physical and institutional focus of the projects on the utilities, and the fact that most water pollution derives from non-point sources, these are objectives that are likely to take decades to achieve because of the large number of national and international stakeholders involved.

Efficiency

5.8 **Project efficiency is rated as substantial.** Although the ICR estimated the financial rate of return (FRR) for HWW to be only 4.5 percent, there were significant environmental and human benefits resulting from reduced pollution plus added biodiversity and tourism benefits in the Matsalu Bay area. Attempts to capture the total economic value of environmental services – using contingent valuation methods – have been applied to the Baltic Sea in Sweden, Poland and Lithuania to estimate the perceived value of reduced eutrophication[20, 21, 22] The results from Sweden indicate that individuals were willing to pay about 0.5 percent of net income even though, unlike Haapsalu, water quality did not impose limitations on swimming and recreation. On the basis of only Haapsalu's population, the ICR estimated the economic rate of return to increase to 7.8 percent. Given that tourism has substantially increased since the late 1990s and Nordic pensioners use the Haapsalu-Matsalu areas for both medium and short stay health treatments and for summer retreats, the affected population is considerably larger and richer than average, thus probably nudging the ERR upwards towards 10 percent. In addition, it is highly probable that the willingness to pay in Estonia was significantly larger than in Sweden because improvements were more dramatic (e.g. cancellation of swimming bans, reduction of smell, increased use of health treatment facilities and tourism). Therefore this evaluation supports the argument in the ICR that the ERR could be larger than 12 percent.

5.9 The project's success suffered from the impact of the unrealistic demand projections that were utilized in the design. This was a common problem in the ECA transition economies at that time and was extensively discussed during project preparation and appraisal. However, the utility's and the governments unwillingness to utilize decreasing

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20. Gren, I.M, T Sondequist, F. Wulff, S.Langass, M.Sandstrom and C. Folke. 1996. *Reduced Nutrient Loan to the Baltic Sea: Ecological Consequences, Costs and Benefits.* Beijer International Institute for Ecological Economics. Royal Swedish Academy.

21. Makowska, A. and T. Zylicz. 1996. *Coasting an International Public Good: The Case of the Baltic Sea.* Warsaw Ecological Economics Centre, Warsaw University.

22. Sonderqvist, T and H. Scharin. 2000. *The Regional Willingness To Pay For Reduced Eutrophication In The Swedish Archipelago.* Beijer International Institute for Ecological Economics. Royal Swedish Academy.

water demand forecast led to an oversized WWTP facility and overoptimistic projections of revenue from sales of water and sewage services, as anticipated by the Bank. During appraisal, the compromise that was reached was a constant water demand forecast scenario. In consequence, the lower cash flows were unable to generate acceptable FRR, a situation made more difficult by the exchange of the loan repayment because of exchange rate escalation. However, an oversized WWT facility is not a fatal flaw given the large influx of summer visitors which more than doubles the population, and in some countries, for example in the Seychelles, tourist hotels/facilities pay higher water tariffs.[23]

Institutional Development

5.10 **The overall institutional development impact is rated as substantial.** There was a high level of development as evidenced by successful reorganization, computerization, information systems, skills upgrading and strategic planning – greatly enhance by technical assistance from Nordic utilities under the twinning arrangement and donors' support for environmental management. The process to establish realistic tariffs is a notable achievement and needs further refinement to enable the utilities to become financially sustainable. Offsetting this, HWW appear unwilling to expand their area of management to include other small towns and villages in North Western Estonia thus bringing improved management and economies of scale in operations. The regulatory environment needs improvement, particularly for utility tariff setting. Control and management of air and water pollution will have to move from the current emissions-based approach to an overall environmental impact framework in line with EU Directives.

5.11 The unwillingness to go ahead with piloting ecologically-based WWTP in the River Kasari catchment was the only real institutional failing of the project, particularly as the traditional chemical and concrete WWTPs installed are proving difficult and expensive to maintain. There is a growing body of evidence that ecological approaches to WWT in Estonia are feasible and economic.[24]

5.12 The Matsalu management plan initiated a capacity building process concerning cost effective and relevant nature protection and management in Estonia which has been as base for adoption of the EU nature protection scheme (NATURA 2000).[25]

5.13 The mix of instruments offered to manage pollution and the environment need review as they may offer the wrong incentives. Specifically, the willingness of the Nordic agencies to use grants to achieve HELCOM objectives, and government's willingness to give grant support to fill the gap created by inadequate tariffs, may undermine the resolve to reform and local institutional development. Even so, there is adequate evidence that Estonia is successfully managing many of its pollution problems - without outside direction - by the

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23. OED 2002. PPAR Seychelles: Water and Transport Project. Report No.

24. Mauring. T. 2001. *Wastewater Treatment Wetlands In Estonia: Efficiency And Landscape Analysis*. Ph.D. Dissertation. University of Tartu, Estonia.

25. WWF Sweden have commented that the three different project components (Haapsalu WWTP, agricultural runoff management and Matsalu nature reserve management) appeared not to be coordinated and recommended a national steering group to do so (see Annex C).

marked progress towards meeting JCP hotspot targets. Good examples include installation of a new WWTP at Paide in central Estonia and the substantial reduction of water and air pollution from the Kehra Pulp and Paper Plant located in northeast Estonia.[26]

Sustainability

5.14 **Sustainability is rated likely.** Government, municipal and utility ownership is high, and continued grant support from Nordic development partners and central government to meet HELCOM and EU accession targets is highly likely. The WWTP technology at Haapsalu carries few risks and the capacity is large enough to cover any foreseeable increase in demand for treatment capacity. Apart from the medium-term loan repayment problem (which may be solved by either a central government grant or increases to the water tariff) HWW is soundly and effectively administered. If HWW responds to government pressure and extends its operational area to cover the eastern region, the economies of scale would increase its profitability.

Bank Performance

5.15 **Bank performance is rated satisfactory.** Prior to the Bank's engagement, Nordic development partners and EBRD were working with MOE and the Municipality of Haapsalu on measures to provide new infrastructure and technical assistance to enable Haapsalu town to meet HELCOM environmental standards. In 1993 EBRD's potential support for Haapsalu's WWTP fell though, and this provided an opportunity for the Bank to step in as coordinator and link Baltic Sea clean-up efforts in Estonia to similar Bank-funded projects in Latvia and Lithuania. The Bank's rationale was that its convening power and knowledge on environmental clean-up, utility management and institution-building would catalyze reform. The history of the project supports this premise.

5.16 Some informants interviewed by OED stated that the Bank may have chosen the "easy options" at Haapsalu and Maatsalu compared with the much greater severity pollution problems of the northeast and other regions. The evidence does not support this assertion as the Haapsalu and Matsalu Bays Environment Project was the second project the Bank supported to address urban and rural pollution issues in Estonia. The District Heating Rehabilitation Project (1994) was the top priority concern in the energy sector and contributed to improved urban air quality during the long heating season, reduced water losses and supported the environmentally responsible use of biomass for fuel.

5.17 In addition, a potential Bank-supported environment project to address environmental management issues in the oil shale based mining and power industries in Northeast Estonia was the subject of studies supported by Finland, Nordic Investment Bank (NIB) and UNDP over the period 1991-94. This proposal was followed up by several field missions, including a joint Bank-NIB mission in 1995, to examine various aspects of the technical feasibility and costs for this project. These activities ended when the Government of Estonia, consistent

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26. HELCOM. 2001. Baltic Sea Environmental Proceedings No. 83. Helsinki. In the early 1990s, Kerhra PPP produced for each ton of air dried paper pulp 35.4 kg of SO2 and 8.9 kg and of BOD. Production has more than doubled under new ownership since 1996 and current levels per air dried ton of output are 1.8 kg of SO2 and 2.3 kg of BOD.

with its overall policy of promoting private sector investment, entered into negotiations with NRG (a utility based in the United States) to privatize these facilities. When these talks ended unsuccessfully in 2002 the northeast situation was little improved. However, there is now interest by the NIB and KfW of Germany to make possible investments in modernization of two of the power generation units.[27]

5.18 All major stakeholders – government, MOE, municipalities, utilities and the Nordic donors – independently told the assessment team that the Bank was very effective in creating (and sustaining through supervision) a framework which enabled financially-viable environmental clean-up and management, and that it demonstrated the effectiveness of multi-sectoral programs even when all environmental management activities were independently supported by government and other development partners. This would not have been possible without Nordic partners' grant-funding of the twinning arrangements and reciprocal visits within the region, all of which enhanced Estonia's technical knowledge and capacity, but was less effective at accelerating managerial improvements (para 3.3).

5.19 But some aspects of the external partners' involvement were criticized. Government officials felt that dependence on their advisors displaced local skills and knowledge thus lowering local ownership: "it would have been better to slow down and build local capacity than import consultants to direct us." The Bank's involvement in Haapsalu and Maatsalu is perceived more an effort to get its foot quickly in the door and catch-up with EBRD and expand its Baltic Sea program than develop a coherent approach to all Estonia. As a result, the Bank's impact is perceived as localized, confined to hardware solutions and neglectful of sector-wide institutional development that required more time and patience.[28]

5.20 High supervision cost of the Haapsalu and Maatsalu project may have squeezed out other environmentally-focused activities. In comparison to the size of loan of $2.0 million, Bank costs were $0.78 million. Annual supervision cost was quite high for a relatively simple localized project - $115,000 a year.[29] It should be noted that the Bank's supervision budget was below average which required that significant consultant trust funds were added to provide implementation support. Thus the total cost of the Bank's supervision services was significantly higher than the Bank average.

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27. A loan from the Nordic Investment Bank (NIB) and Kreditanstalt für Wiederaufbau (KfW) to Eesti Energia for upgrading Narva Powerplants was approved on June, 2002. It will assist modernisation of the Narva power plants to fulfil the bilateral environmental agreement with Finland and compliance with EU directives. The financing package, totaling 150 million Euro, is one of the biggest ever carried out in the Baltic region without a direct state guarantee. Eesti Energia plans to invest a total of 762 million Euro over the next 15 years.

28. The Bank's ECA regional management disagree with these statements. Because these statements summarize views of some higher echelons of Estonian government and NGO leaders they have been retained.

29. Bank average supervision costs for ECA projects 1995-1999 were $70,260 a year, slightly higher than the Bank average of $59,880 a year

Borrower Performance

5.21 **Borrower performance is rated satisfactory.** Ownership was high and government's and HWW's high level of commitment to sound and sustainable utility and environmental management enabled achievement of most of the objectives.

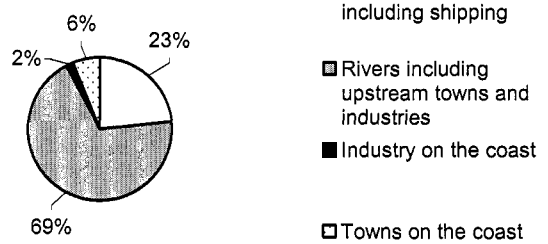
6. Findings and Lessons

Findings

6.1 Estonia is well on the way to achieving regionally agreed water quality emission standards to the Baltic Sea. While the upgraded wastewater treatment facilities provided had a significant impact on reaching these targets locally, reduced economic and industrial activity and the constraining effect of increased water tariffs on demand also made a major contribution. Regional planning on the principles of integrated coastal zone management was initiated but was frustrated by the present administrative set-up that rigidly separates sectors, services and planning. There is a need to move from an emission-control regime to one that considers the effects of pollution within an environmental impact assessment framework; only thus can clean-up and control priorities be objectively prioritized. It is possible that had such a framework been in place, Haapsalu may not have been a priority for Bank intervention (para 5.14). Indeed, government's parallel successes in cleaning up municipal wastewater pollution and commercializing water utilities with support from EBRD and Nordic donors indicates that the Bank was not really needed after the first 2-3 years.

6.2 While local impact on water pollution was significant, several studies indicate there is little apparent impact to date on the overall water quality of the Baltic Sea.[30] This is not unexpected given that only a decade has elapsed since rampant pollution was endemic from the former Soviet Union, and that pollution abatement and mitigation efforts only date from the mid-1990s. Apart from direct pollution from coastal towns and industry, three-quarters of pollution derives from difficult-to-control agricultural non-point sources draining to rivers and the atmosphere (Figure 3). Accumulated stocks of municipal and industrial wastes, some of them hazardous, are a also problem. Additionally, Estonia is only one of five states newly-independent that discharge

Figure 3: Nitrogen Inputs to the Baltic Sea (1995)



Source: HELCOM. 2001. Baltic Sea Environment Proceedings No. 82A

30. HELCOM. 2001. Baltic Sea Environment Proceedings Nos 82A and 84; Baltic Environmental Forum 2000. 2nd Baltic State of the Environment Report.

pollutants to the Baltic, and rained-out aerosols from industry and power stations account for a considerable share of pollution. Within the Baltic Sea, the minimal rate of exchange to the Atlantic Ocean favors trapping and stocking of nutrients and hazardous chemicals. It is expected, however, that regional efforts should reduce the effects of more readily controlled biochemical oxygen demand and thus the extent of toxic algal blooms. There is a well-developed regulatory structure and use of economic instruments to control pollution in Estonia and other FSU states but the charges are not yet high enough to be effective – a task made less palatable by the precarious state of industry and the need for the employment it sustains.

6.3 The regulatory environment for water tariffs needs reform to remove municipal gate-keepers who have a political interest in keeping tariffs low. The current regulatory set-up would benefit from review. Government should ensure a mechanism for setting predictable and transparent subsidies to meet social objectives and disburse them independently of the utilities' financial accounting.

Lessons

There are three lessons from this experience:

- Regionally-sponsored environmental initiatives in response to inter-governmental action plans provide good opportunities for the Bank to exercise its comparative advantage in leveraging institutional reform through targeted lending. When linked with grant funding from bilateral development partners it provides a powerful and influential lobby for reform.

- When designing and implementing regional environmental initiatives and their specific projects, significant benefits can be achieved by addressing infrastructure investments, environmental management activities and capacity building in an integrated manner. Multiplier effects will be achieved by careful attention and support for development of local institutions and their human resources.

- It is important to fully understand the interests and institutional capabilities of the various local stakeholders, specifically for community based activities, and to factor in sufficient time and resources to build a consensus for reform and agreement on issues and longer-term objectives. Care should taken to avoid project activities being driven by external partners and which can undermines local ownership.

Annex A. Basic Data Sheet

Estonia: Haapsalu Matsalu Environment Project (L3870)

Key Project Data *(amounts in US$ million)*

	Appraisal estimate	*Actual or current estimate*	*Actual as % of appraisal estimate*
Total project costs	8.2	8.93	109
Loan amount	2.0	2.0	100
Cofinancing	3.43	4.16	121
Cancellation	0	0	-

Project Dates

	Original	*Actual*
Initiating memorandum (PCD)	-	07/09/93
Negotiations	-	02/27/95
Letters of Development Policy	-	-
Board approval	-	4/20/95
Signing	-	-
Effectiveness	6/25/95	4/12/96
Closing date	6/30/99	6/30/2000

Staff Inputs

	No. of Staff Weeks	*US$ (000)*
Appraisal to Negotiation	-	300.7
Supervision	-	461.8
Completion	-	14.3
Total	-	776.8

Mission Data

Stage of Project Cycle	No. of Persons and Specialty		Performance	Rating
Month/Year	Number	Speciality	Implementation Progress	Development Objective
Identification/ Preparation	4	Environmental Specialist		
06/26/94-06/28/94	2	Environmental Engineers		
	2	Environmental Economists		
	1	Procurement Specialist		
	1	Legal Advisor		
	1	Operational Analyst		
	1	Environmental Specialist (Sweden/MOE)		
	3	Environmental Consultants (EU-Phare)		
	1	Environmental Specialist (Finland/Ministry of Environment)		
	18			
Appraisal/Negotiation	1	Environmental Economist		
01/11/95-01/15/95	1	Financial Specialist		
	1	Environmental Engineer		
	3			
Negotiation				
02/21/95-02/27/95	2	Environmental Specialists		
	1	Environmental Engineer		
	1	Disbursement Officer		
	1	Legal Counsel		
	1	Financial Analyst		
	1	Loan Officer		
	1	Donor Representative		
	8			
Supervision	1	Environmental Economist	S	S
06/09/95-06/10/95	1	Environmental Engineer		
	2			
			S	S
02/15/96-02/16/96	1	Environmental Economist		
	1	Environmental Engineer		
	1	Procurement Specialist		
	2	Financial Specialists		
	1	Management Specialist		
	1	Performance Indicators Specialist		
	7		S	S
06/27/96-06/28/96				
	1	Environmental Economist		
	1	Environmental Engineer		
	1	Financial Specialist		
	1	Management Specialist	S	S
	4			
01/30/97-01/31/97	1	Environmental Engineer		
	1	Financial Specialist		
	1	Management Specialist		
	1	Environmental Specialist		
	1	Procurement Specialist	S	S
	1	Operations Analyst		
	6			
09/23/97-09/24/97	1	Environmental Engineer		
	1	Environmental Specialist	S	S
	1	Financial Specialist		
	1	Management Specialist		
	4			
04/26/98-04/27/98	1	Environmental Economist		
	2	Environmental Engineers		
	1	Environmental Specialist	S	S
	1	Financial Specialist		
	1	Management Specialist		
	1	Operations Assistant		
	7			

Continued/

Stage of Project Cycle	No. of Persons and Specialty		Performance	Rating
Month/Year	Number	Speciality	Implementation Progress	Development Objective
11/02/98-11/03/98	1	Environmental Specialist		
	2	Environmental Engineers		
	1	Financial Specialist		
	1	Management Specialist		
	1	Operations Assistant	S	S
	1	Research Assistant		
	7			
05/19/99-05/20/99	1	Environmental Engineer		
	1	Financial Specialist		
	1	Management Specialist	S	S
	1	Environmental Economist		
	1	Operations Assistant		
	5			
11/01/99-11/02/99	1	Environmental Specialist		
	1	Environmental Economist		
	1	Financial Specialist		
	1	Management Specialist		
	1	Environmental Engineer		
	5			

Annex B1. Additional and Supporting Data

Key performance Indicators/Log Frame Matrix

The table below reflects the dynamics of the key financial and performance indicators during the project implementation.

Selected Financial and Operational Indicators

Indicator	Unit	1994	1995	1996	1997	1998	1999	2000	2001
1. Water production	$1000m^3$	1256	1069	954	860	771	732	678	600
2. Consumption of water per capita	lpcd	175	153	139	117	89	79	77	73
3. Domestic water sales	$1000m^3$	663	579	524	465	400	361	359	342
4. Industrial and commercial water sales, including self-consumption	$1000m^3$	298	281	229	206	178	182	182	164
5. Self-consumption	$1000m^3$	1.1	1.2	7.4	10.8	13.1	16.2	17.5	15.0
6. Total water sales	$1000m^3$	961	860	753	671	578	543	541	506
7. Unaccounted-for-water	$1000m^3$	298	208	202	190	193	189	137	94
8. Unaccounted-for-water	%	23	19	21	22	25	26	20	16
9. Length of water network	Km	23	24	24	31	39	43	47	48
10. Water loss	$1000m^3$/km per year	13	9	8	6	5	4	3	2
11. Net income per household member	EEK/month	-	1,154	1,192	1,532	1,711	1,923	1,875	1,952
12. Expenditures by population on water-sewerage services per household member	EEK/month	-	39	49	57	53	53	55	53
13. Share of household expenditures on water-sewerage services	%	-	3.4	4.1	3.7	3.1	2.8	3.0	2.7

Lpcd = liters per capita per day
Source: Haapsalu Water Company

Annex B2: Costs of Water and Wastewater Component

Component Name	Appraisal Estimate ($000)	Actual/Latest Estimate (000)	Remarks
TA and International Consulting			
International Consultants (PIU Support)	$444	$31	The Client considered Bank training comprehensive, and did not employ foreign procurement consultants. Only tariff study was executed.
Consultants	$1,242	$803	Savings – US$44,000 reallocated to network extension
WWTP reconstruction			
Capacity = 7240 m3/d			
WWTP design, supervision and construction works, bilateral Swedish financing	$3,019	$2,804	
Total WWTP	$3,019	$2,804	Savings-US$215,000
Water supply and sewerage system			
Part I-Reconstruction of three existing pumping stations	$251	$294	Four pumping stations were reconstructed
Part II-Haava Collector rehabilitation, 500m	$297	$153	Savings US$144,000 reallocated to network extension
Part III-Tööstuse, Raudtee, Kalda, Car service sewerage, 3000m	$444	$580	Additional works: PS-19 and new pipelines in Uuemõisa 611.
Part IV-Pikk-Holm, Supluse area sewerage, 2250m	$411	$275	Additional works: new PS-19 and new pipelines-800m
Part V-System reconstruction, Automatic Control System, initially no network extensions planned	$343	$1,254	Additional works: Kiltsi area, Koidula, Uus, Staadioni, Õpetaja Streets-516m New PS 20, PS 25, reconstruction of existing PS no 7, PS no 13, Psno14, Psno1, Sewer pipelines rec.- 736m Võnnu-Endla area pipelines-3264m
Total WS and SS	$1,746	$2,556	
Smaller equipment			
Laboratory equipment	$52	$32	Savings US$155,000 reallocated to network extension
Renewal of Pumps	$191	$56	
	$243	$88	
Grand Total	$6,250	$6,250	

Annex B2: Key Performance Indicator - Haapsalu Water Works

		1994	1995	1996	1997	1998	1999	2000	2001
Value of Fixed Assets	MEEK	102	19.7	22.2	57.3	73.9	96.1	104.8	114.0
Length of Pipelines									
	Sewer	23.3	24.4	24.4	30.9	39.0	42.8	46.8	47.5
	Water	15.3	17.0	17.8	23.1	27.7	38.1	42.0	44.9
Pumping Stations									
	Water Distribution	5	5	5	9	11	11	10	10
	Boreholes	8	8	8	12	14	14	13	13
	Sewerage	6	6	8	13	14	19	19	20
Unaccounted-for-water									
	Volume 1000 m3	289	208	202	190	193	189	137	94
	Loss as % Supply	23.7	19.5	21.1	22.1	25.0	25.9	20.2	15.6
	Per km of pipelines (1000 m3)	12.8	8.5	8.3	6.1	4.9	4.4	2.9	2.0
Water Sales		961	860	753	671	578	543	541	506
Sewerage Sales		827	674	608	566	477	435	439	436
Water Consumption l/c/day		175	153	139	117	89	79	77	73
Average Water Tariff EEK/m3		5.02	8.47	11.86	16.52	19.95	22.50	24.13	24.45
Net Income (1000 EEK)		3,883	5,609	7,076	9,103	9,324	9,669	10,400	10,699
Number of Employees		39	38	39	40	33	30	28	27
Net Income/Employee (1000 EEK)		98.3	147.6	181.4	227.6	282.6	322.3	371.4	391.7

Source: Haapsalu Water Works (2002)

Annex C. Cofinanciers' Comments

Comments were received from Haapsalu Water Works on 06/20/2003 from Mr. Algis Saar, Vice Manager of HWW.

These comments covered minor corrections to the allocation of project financing and HWW's performance indicators. The PPAR's text and annex was corrected accordingly."

Comments provided by World Wide Fund for Nature (WWF) on 6/18/2003 from Mr. Lennart Gladh in Sweden.

Introduction

In general I find the report relevant and covering the most important aspects. Below are some corrections, comments on some detailed issues and a reflection on "lessons learned".

Page 9-1.2

The number of inhabitants in Haapsalu is and not 15000 its 12000.

The name of the bird migration route from West Africa and Western Europé to the Arctic is the East-Atlantic flyway.

Page 14-4.6

WWF Sweden supervised the Matsalu management plan which then was used as a base for the Matsalu Integrated Coastal Management plan under the auspices of HELCOM.
The implementation of the plan has gained support from WWF Sweden and Sida,under the Väinameri project.

Page 20-5.10

The Matsalu management plan initiated a capacity building process concerning cost effective and relevant nature protection and management in Estonia which has been as base for adoption of the EU nature protection scheme (NATURA 2000).

In many projects the different environmental "sectors"(the technical brown/blue and the more soft green) are separated due to the fact that institutional arrangements. This causes in many cases problems or ,at least, weakens the total project impact outcome.

The project portfolio contained 3 different packages-the Haapsalu WWTP, agricultural run off and relevant protection measures and management of the Matsalu nature reserve.

The efficiency of the this project would have been strengthened if these had been better co ordinated in Estonia via a national steering group. This had effected the legal and administrative systems more effectively as well as made the effects of outreach activities stronger.

MAP SECTION