DANUBE POLLUTION REDUCTION PROGRAMME

NATIONAL REVIEWS 1998
HUNGARY

PROJECT FILES

Ministry of Environment
Ministry of Transport, Communication and Water Management

in cooperation with the

Programme Coordination Unit
UNDP/GEF Assistance

DANUBE POLLUTION REDUCTION PROGRAMME

NATIONAL REVIEWS 1998
HUNGARY

PROJECT FILES

Ministry of Environment
Ministry of Transport, Communication and Water Management

in cooperation with the

Programme Coordination Unit

UNDP/GEF Assistance

Preface

The National Reviews were designed to produce basic data and information for the elaboration of the Pollution Reduction Programme (PRP), the Transboundary Analysis and the revision of the Strategic Action Plan of the International Commission for the Protection of the Danube River (ICPDR). Particular attention was also given to collect data and information for specific purposes concerning the development of the Danube Water Quality Model, the identification and evaluation of hot spots, the analysis of social and economic factors, the preparation of an investment portfolio and the development of financing mechanisms for the implementation of the ICPDR Action Plan.

For the elaboration of the National Reviews, a team of national experts was recruited in each of the participating countries for a period of one to four months covering the following positions:

- Socio-economist with knowledge in population studies,
- Financial expert (preferably from the Ministry of Finance),
- Water Quality Data expert/information specialist,
- Water Engineering expert with knowledge in project development.

Each of the experts had to organize his or her work under the supervision of the respective Country Programme Coordinator and with the guidance of a team of International Consultants. The tasks were laid out in specific Terms of Reference.

At a Regional Workshop in Budapest from 27 to 29 January 1998, the national teams and the group of international consultants discussed in detail the methodological approach and the content of the National Reviews to assure coherence of results. Practical work at the national level started in March/April 1998 and results were submitted between May and October 1998. After revision by the international expert team, the different reports have been finalized and are now presented in the following volumes:

Volume 1:	Summary Report
Volume 2:	Project Files
Volume 3 and 4:	Technical reports containing:
	- Part A: Social and Economic Analysis
	- Part B: Financing Mechanisms
	- Part C: Water Quality
	- Part D: Water Environmental Engineering

In the frame of national planning activities of the Pollution Reduction Programme, the results of the National Reviews provided adequate documentation for the conducting of National Planning Workshops and actually constitute a base of information for the national planning and decision making process.

Further, the basic data, as collected and analyzed in the frame of the National Reviews, will be compiled and integrated into the ICPDR Information System, which should be operational by the end of 1999. This will improve the ability to further update and access National Review data which is expected to be collected periodically by the participating countries, thereby constituting a consistently updated planning and decision making tool for the ICPDR.

UNDP/GEF provided technical and financial support to elaborate the National Reviews. Governments of participating Countries in the Danube River Basin have actively participated with professional expertise, compiling and analyzing essential data and information, and by providing financial contributions to reach the achieved results.

The National Review Reports were prepared under the guidance of the UNDP/GEF team of experts and consultants of the Danube Programme Coordination Unit (DPCU) in Vienna, Austria. The conceptual preparation and organization of activities was carried out by **Mr. Joachim Bendow**, UNDP/GEF Project Manager, and special tasks were assigned to the following staff members:

- Social and Economic Analysis and Financing Mechanisms: **Reinhard Wanninger**, Consultant
- Water Quality Data: **Donald Graybill**, Consultant,
- Water Engineering and Project Files: **Rolf Niemeyer**, Consultant
- Coordination and follow up: **Andy Garner**, UNDP/GEF Environmental Specialist

The **Hungarian National Review** was prepared under the supervision of the Country Programme Coordinator, **Ms. Maria Galambos**. The authors of the respective parts of the report are:

- Part A: Social and Economic Analysis: **Mr. Judit Rakosi**
- Part B: Financing Mechanisms: **Ms. Klara Toth**
- Part C: Water Quality: **Mr. Gyorgy Pinter**
- Part D: Water Environmental Engineering: **Mr. Sandor Kisgyorgy**

The findings, interpretation and conclusions expressed in this publication are entirely those of the authors and should not be attributed in any manner to the UNDP/GEF and its affiliated organizations.

Ministry of Environment
Ministry of Transport, Communication and Water Management

The UNDP/GEF Danube Pollution Reduction Programme,
Danube Programme Coordination Unit (DPCU)
P.O.Box 500, 1400 Vienna – Austria
Tel: +43 1 26060 5610
Fax: +43 1 26060 5837

Vienna – Austria, November 1998

Table of Contents

Project 1

North Budapest Wastewater Treatment Plant Expansion

Date of first setting up: September, 1998

Date of latest upgrade:

Project Title: Expansion of Wastewater Treatment Plant at North Budapest

Responsible/Legal Body

Authority/Company:

Name:	Local Government of Budapest,
	Mayor's bureau of Budapest
Address:	1052 Budapest, Városház St. 9-11
Telephone:	(36-1) 327-11-25
Fax:	(36-1) 327-18-17
E-mail:	

Project target:	Extension of the capacity of the STP from the existing 140,000 cum/d, up to 200,000 cum/d, Increase of the treatment efficiency
	Implementation of the terciar phase
Investment Costs:	6,615.7 million HUF (net investment cost)
	32.25 million USD
Status of the Project:	Prequalification tender had been finished, 6 contractors were chosen.
	The second phase tender will be started in the near future with the selected companies.

Language of Project Documents:

Hungarian, English

1. Project Title: Expansion of North Budapest Wastewater Treatment Plant in the IV. District, I. Phase

2. Investor Details

2.1. Authority/Company

Name: Local Government of Budapest,
Mayor's bureau of Budapest
Address: 1052 Budapest, Városház St. 9-11
Telephone: (36-1) 327-11-25
Fax: (36-1) 327-18-17
E-mail:

2.2. Contact Persons

Sándor BÓDÁS director of division	(36-1) 327 11 25
Pál BUZINKAY, head of section	(36-1) 327 11 26
Zoltán KISS, senior advisor	(36-1) 327 13 08
András ÁGOI, manager on investment programs	(36-1) 327 11 27

2.3. Advisor, Consultant

FÖMTERV Company	Budapest II. Lövőház u. 37. (Tender documentation.)
HYDROCHEM Ltd.	Budapest XIV. Francia St. (treatment technology)

2.4. Legal/Financial Status

Local government set up on 19 November 1994, on the basis of election.

2.5. Authority/Company Profile

According to the Bill No. XXIV. of 1991 (the so-called Bill on local governments): the area of tasks and responsibilities covers especially…

c.) water-, gas-, public heat service, management of rivers, stormwater runoff, sewerage (10 § 3/c point)

2.6. Planning/Implementing Extent/Capacity of the Investor

Investment managers: there are two engineers at the Public utility division of the Mayor's Bureau.

15 persons staff at the Directorate for Development at the Wastewater Company of the Capital as investment managers.

2.7. Institutions/Enterprises beside the Investor

Licensing authorities: Mid-Danube basin Water Directorate

Mid-Danube basin Environmental Inspectorate

3. Project Description

3.1. A Project Outline

The target is the extension of the capacity of the STP in quantity (from 140 000 to 200 000 cum/d) and treatment efficiency both, with the utilization of the existing combined structure, and partial reconstruction. Effluent requirements are:

COD:	93 mg/l	NH4	34 mg/l
BOD:	5 mg/l	Total P	4 mg/l
SS:	32 mg/l	pH	6,5-9

3.2. Primary Needs for the Project

The Danube River is the main drinking water resource of Budapest with its 2 million inhabitants. The goal of the extension is to treat the pollution load of north Budapest with about 100,000 PE to that extent that is in compliance with the Hungarian effluent standards. The extension gives the possibility of the full capacity utilization of the existing sewer systems in North Buda and North Pest.

3.3. Status of the Project Preparation

The documentation is ready for tendering. The pre-selection tender has been finished; the next step will be started in the near future.

3.4. Technology Proposed

High load preliminary settlers with cover, under low pressure, biofilter for contaminated ear.

Aeration reconstruction in the activated sludge basins reconstruction of the machinery.

Increase of the capacity of existing sludge handling system extension of the dumpsite.

Protection zone forestation.

3.5. Ownership of the Project Site

The Sewerage Company of the Capital owns the site. The STP will be owned by the Capital and rented by the wastewater works for running on the basis of rent fee.

3.6. Specific Project Items

The development should be implemented under normal running conditions of the existing STP line.

Closed settler technology due to the increased environmental requirements.

4. Project Effects and Interactions

4.1. Public's Expression of Interest

The local Parliament elected by the inhabitants of the town agrees with the project.

The local district government has accepted the proposed layout, technology and environmental protection measures. There are certain objections from the side of the local people, who can be managed.

4.2. Environmental Impact Assessment

Preliminary EIA was prepared.

4.3. Sensitivity of Locality/Receptor

The recipient of the treated effluents is the Danube River, which is in direct connection with the bankfiltered groundwater resources of the Capital and other towns downstream. The effluent standards were decided taking into consideration this interrelationship.

Protection of the quality of Danube is an international requirement.

The proposed technology is in accordance with the fact that there is dwelling area at 500-m distance from the STP.

4.4. Primary Effects of the Project

Considerable pollution reduction downstream in the area of Budapest, on the total length of the Hungarian section of the river and even abroad. The nutrient concentration of the river will decrease after the finalization of the II phase.

5. Economic Project Justification

5.1. Economic Project Benefits

- *Saved investment cost (compared to without project case);*
  Total investment cost estimate for the projects:
  Planned: 6,616 million HUF (32.25 million USD)
- *Employment/income effects:(1999-2001)*
  - during construction period (3 years):
    Employment effect:
    for 1 year:
    40 x 12 man/month = 480 man/month
    for the construction period:
    480 x 3 = 1,440 man/month
    Income effect:
    for the whole construction period:
    115,2 million HUF 0.56 million USD

- during operation period: (from 2002)
  Employment effect annually:
  10 x 12 man/month = 120 man/month
  Income effect:
  14.4 million HUF 0.07 million USD

5.2. Economic Internal Rate of Return of the Project (EIRR) :

Not calculated

6. Financial Viability

6.1. Estimated Investment Cost

- Total investment cost: 6,616 million HUF (32.25 million USD)
- Allocation of capital cost for the project period: 1st year 25%, 2nd year 45%, 3rd year 25% of total cost.

Name	Million HUF	Million USD
Land	78.00	0.38
Construction and Machinery	5,617.00	27.38
Planning and Supervision	125.00	0.61
Other costs	796.00	3.88
TOTAL COST :	**6,616.00**	**32.25**

- Year of cost estimate: 1998
- Nature of cost estimate: Adequate, FŐMTERV Plc.

6.2. Estimated Operational Cost

- Expected annual (operational) recurrent cost (in real terms):
  994 million HUF 4.84 million USD
- Repair and replacement cost:
  267 million HUF 1.30 million USD
- Total operational cost:
  1,261 million HUF 6.14 million USD
- Year of estimate: 1996
- Nature of cost estimate: Adequate, FŐMTERV Plc.

6.3. Estimate of Revenues

- Expected annual revenues (in real terms):
  1,091 million HUF 5.32 million USD
- Year of estimate: 1996
- Nature of revenue estimate: Adequate, FŐMTERV Plc.

6.4. Financial Internal Rate of Return of the Project (FIRR) :

Not calculated

6.5. Anticipated/proposed funding scheme for the whole project period (million HUF):

Source of Funding	Secured (million HUF)	Requested (million HUF)	Non-Secured (million HUF)
(1) Equity of project owner	2,602.00	2,602.00	0.00
(2) National Environmental Fund	0.00	0.00	0.00
(3) Water Management Fund	0.00	0.00	0.00
(4) Public loan – Central budget	0.00	0.00	0.00
(5) Public loan – Regional budget	0.00	0.00	0.00
(6) Public loan – Municipal budget	0.00	0.00	0.00
(7) Public grant – Central budget	706.00	706.00	0.00
(8) Public grant – Regional budget	0.00	0.00	0.00
(9) Public grant – Municipal budget	0.00	0.00	0.00
(10) International loan	0.00	3,308.00	3,308.00
(11) International grant	0.00	0.00	0.00
(12) Commercial bank loan	0.00	0.00	0.00
(13) Other sources	0.00	0.00	0.00
TOTAL FUNDS/REQUIREMENTS:	3,308.00	6,616.00	3,308.00

Anticipated/proposed funding scheme for the whole project period (million USD):

Source of Funding	Secured (million USD)	Requested (million USD)	Non-Secured (million USD)
(1) Equity of project owner	12.68	12.68	0.00
(2) National Environmental Fund	0.00	0.00	0.00
(3) Water Management Fund	0.00	0.00	0.00
(4) Public loan - Central budget	0.00	0.00	0.00
(5) Public loan - Regional budget	0.00	0.00	0.00
(6) Public loan - Municipal budget	0.00	0.00	0.00
(7) Public grant - Central budget	3.44	3.44	0.00
(8) Public grant - Regional budget	0.00	0.00	0.00
(9) Public grant - Municipal budget	0.00	0.00	0.00
(10) International loan	0.00	16.13	16.13
(11) International grant	0.00	0.00	0.00
(12) Commercial bank loan	0.00	0.00	0.00
(13) Other sources	0.00	0.00	0.00
TOTAL FUNDS / REQUIREMENTS:	16.12	32.25	16.13

Project 2

South Pest Wastewater Treatment Plant Expansion

Date of first setting up: September, 1998

Date of latest upgrade:

Project Title: Expansion of Wastewater Treatment Plant at South Pest

Responsible/Legal Body

Authority/Company:

Name:	Local Government of Budapest, Mayor's bureau of Budapest
Address:	1052 Budapest, Városház St. 9-11
Telephone:	(36-1) 327-11-25
Fax:	(36-1) 327-18-17
E-mail:	

Project target:	Extension of the capacity of the STP phase: from the existing 72,000 cum/d, up to 80,000 cum/d, phase: up to 120,000 cum/d, N and P removal in the terciar phase
Investment Costs:	5,721.5 million HUF (net investment cost) 27.89 million USD
Status of the Project:	In the phase of implementation on the basis of approved license documentation

Language of Project Documents:

Hungarian, English

1. Project Title: Expansion of South Pest Wastewater Treatment Plant

2. Investor Details

2.1. Authority/Company

Name: Local Government of Budapest,
Mayor's bureau of Budapest
Address: Budapest, Városház St. 9-11
Telephone: (36-1) 327-11-25
Fax: (36-1) 327-18-17
E-mail:

2.2. Contact Persons

Sándor BÓDÁS director of division (36-1) 327 11 25
Pál BUZINKAY, head of section (36-1) 327 11 26
Zoltán KISS, senior advisor (36-1) 327 13 08
András ÁGOI, manager on investment programs (36-1) 327 11 27

2.3. Advisor, consultant

FÖMTERV Company Budapest II. Lövőház u. 37. (Tender documentation.)
HYDROCHEM Ltd. Budapest XIV. Francia St. (treatment technology)
HYDROCOMPLEX Ltd. Budapest III. Bécsi St. (Construction design, consulting)

2.4. Legal/Financial Status

Local government set up in19 November 1994, on the basis of election.

2.5. Authority/Company Profile

According to the Bill No. XXIV. of 1991 (The so-called Bill on local governments): the area of tasks and responsibilities covers especially…

c.) Water-, gas-, public heat service, management of rivers, stormwater runoff, sewerage (10 § 3/c point).

2.6. Planning/Implementing Extent/Capacity of the Investor

Investment managers: two engineers at the Public utility division of the Mayor's Bureau.

15 persons staff at the Directorate for Development at the Wastewater Company of the Capital as investment managers.

2.7. Institutions/Enterprises beside the Investor

Licensing authorities: Mid-Danube basin Water Directorate

Mid-Danube basin Environmental Inspectorate

Hydrocomplex as general consultant

3. Project Description

3.1. A Project Outline

Reconstruction and alteration of the existing 3 treatment lines (I phase).

Construction of the BIOFOR for N and P removal (Structures for 120,000 cum/d, machinery for 80,000 cum/d in the II step). Extension and development of the existing sludge line.

3.2. Primary Needs for the Project

The recipient is the Ráckeve-Soroksár oxbow, with limited dilution capacity (Qmean: 50 cum/s). The area is the biggest recreation area of the Capital with its 50-km length. The water serves as drinking water resource also. The expansion of the plant gives the possibility for the expansion of sewerage in the XVIII, XIX, XX, and XXIII. The risk of eutrophication will be decreased in the recipient due to the terciar phase. The effluent parameters will fulfil the EU requirements.

3.3. Status of the Project Preparation

Total

3.4. Technology Proposed

Deep aeration activated sludge basins, nitrification, denitrification in line, Compact Biofilters, sludge digestion and dewatering, biogas utilization at the plant energy supply.

3.5. Ownership of the Project Site

The Sewerage Company of the Capital owns the site. The STP will be owned by the Capital and rented by the wastewater works for running on the basis of rent fee.

3.6. Specific Project Items

The development is placed to the Southern part of the existing plant on the basis of authority permit.

100 m of forested safety zone is needed.

The design has taken into consideration the needs of further development.

4. Project Effects and Interactions

4.1. Public's Expression of Interest

The inhabitants basically agree with the expansion program.

The local district government (XXIII. Soroksár) supports the program.

The expansion and development of the plant contributes to the increase of canalization fee in the Capital.

4.2. Environmental Impact Assessment

EIA has been finished and adopted.

4.3. Sensitivity of Locality/Receptor

See point 3.2.

4.4. Primary Effects of the Project

Improvement of the water quality and life conditions of the water related ecosystem of the Ráckeve-Soroksár oxbow.

The water quality improvement will have effect on the quality of Danube itself, down to Tass.

5. Economic Project Justification

5.1. Economic Project Benefits

- *Saved investment cost (compared to without project case);*
  Total investment cost estimate for the projects :
  Planned: 5,722 million HUF (27.89 million USD)
- *Employment/income effects:(1999-2000)*
  - during construction period (2 years):
    Employment effect:
    for 1 year:
    30 x 12 man/month = 360 man/month
    for the construction period:
    360 x 2 = 720 man/month
    Income effect:
    for the whole construction period:
    57,6 million HUF 0.28 million USD
  - during operation period: (from 2001)
    Employment effect annually:
    5 x 12 man/month = 60 man/month
    Income effect:
    7.2 million HUF 0.04 million USD

5.2. Economic Internal Rate of Return of the Project (EIRR) :

Not calculated

6. Financial Viability

6.1. Estimated Investment Cost

- Total investment cost: 5,722 million HUF (27,89 million USD)
- Allocation of capital cost for the project period: 1st year 50%, 2nd year 50% of total cost.

Name	Million HUF	Million USD
Land + Other	1,294.00	6.31
Construction and Machinery	4,380.00	21.35
Planning and Supervision	48.00	0.23
Other costs	0.00	0.00
TOTAL COST :	**5,722.00**	**27.89**

- Year of cost estimate: 1996
- Nature of cost estimate: Adequate, FŐMTERV Plc.

6.2. Estimated Operational Cost

- Expected annual (operational) recurrent cost (in real terms):
  360 million HUF 1.75 million USD
- Repair and replacement cost:
  300 million HUF 1.46 million USD
- Total operational cost:
  560 million HUF 3.21 million USD
- Year of estimate: 1998
- Nature of cost estimate: Adequate, FŐMTERV Plc.

6.3. Estimate of Revenues

- Expected annual revenues (in real terms):
  944 million HUF 4.60 million USD
- Year of estimate: 1998
- Nature of revenue estimate: Adequate, FŐMTERV Plc.

6.4. Financial Internal Rate of Return of the Project (FIRR) :

Not calculated

6.5. Anticipated/proposed funding scheme for the whole project period (million HUF):

Source of Funding	Secured (million HUF)	Requested (million HUF)	Non-Secured (million HUF)
(1) Equity of project owner	1,421.00	1,421.00	0.00
(2) National Environmental Fund	0.00	0.00	0.00
(3) Water Management Fund	0.00	0.00	0.00
(4) Public loan – Central budget	0.00	0.00	0.00
(5) Public loan – Regional budget	0.00	0.00	0.00
(6) Public loan – Municipal budget	0.00	0.00	0.00
(7) Public grant – Central budget	1,434.00	1,434.00	0.00
(8) Public grant – Regional budget	0.00	0.00	0.00
(9) Public grant – Municipal budget	0.00	0.00	0.00
(10) International loan	0.00	2,867.00	2,867.00
(11) International grant	0.00	0.00	0.00
(12) Commercial bank loan	0.00	0.00	0.00
(13) Other sources	0.00	0.00	0.00
TOTAL FUNDS/REQUIREMENTS:	2,855.00	5,722.00	2,867.00

Anticipated/proposed funding scheme for the whole project period (million USD):

Source of Funding	Secured (million USD)	Requested (million USD)	Non-Secured (million USD)
(1) Equity of project owner	6.93	6.93	0.00
(2) National Environmental Fund	0.00	0.00	0.00
(3) Water Management Fund	0.00	0.00	0.00
(4) Public loan – Central budget	0.00	0.00	0.00
(5) Public loan – Regional budget	0.00	0.00	0.00
(6) Public loan – Municipal budget	0.00	0.00	0.00
(7) Public grant – Central budget	6.99	6.99	0.00
(8) Public grant – Regional budget	0.00	0.00	0.00
(9) Public grant – Municipal budget	0.00	0.00	0.00
(10) International loan	0.00	13.97	13.97
(11) International grant	0.00	0.00	0.00
(12) Commercial bank loan	0.00	0.00	0.00
(13) Other sources	0.00	0.00	0.00
TOTAL FUNDS / REQUIREMENTS:	13.92	27.89	13.97

Project 3

Győr Wastewater Treatment Plant Development

Date of first setting up: September, 1998

Date of latest upgrade:

Project Title: Györ town wastewater treatment plant development and extension of the II Treatment phase and sludge management

Responsible/Legal Body

Authority/Company:

Name:	The Major's Bureau of Györ
Address:	9021 Györ, Városház square 1.
Telephone:	36 96 500 251
Fax:	36 96 442 650
E-mail:	

Project target: The effluent requirements of the municipal wastewater treatment plant should be fulfilled.

Investment Costs: 2,600 million HUF (12.67 million USD)

Status of the Project: Feasibility Study was prepared.

Language of Project Documents:

Hungarian,

FS: English (PHARE report)

1. Project Title: Győr town waste water treatment plant development and extension of the II Treatment phase and sludge management

2. Investor Details

2.1. Authority/Company

Name: The Major's Bureau of Győr

Address: 9021 Győr, Városház square 1.

Telephone: 36 96 500 251

Fax: 36 96 442 650

E-mail:

2.2. Contact Persons

Mezeiné Csillag Irma

2.3. Advisor, Consultant

Mélyépterv Complex Company (design, consulting).

Pannonvíz Company (maintenance and running in the future).

2.4. Legal/Financial Status

Local government elected in 1998.

2.5. Authority/Company Profile

Local government, with the responsibility for the management of the town with 130,000 inhabitants.

2.6. Planning/Implementing Extent/Capacity of the Investor

They have no project management capacity.

The consultant and construction contractors will be chosen on the basis of open tender.

2.7. Institutions/Enterprises beside the Investor

North – Danube valley Water Directorate

North – Danube valley Environmental Inspectorate

Service on Hygiene at Győr

Pannonvíz Company as contractor for operation

3. Project Description

3.1. A Project Outline

The first phase of the wastewater treatment plant has been finished, but it is not possible to fulfil the environmental requirements. Extension is needed. The beneficiaries of the project are the inhabitants of Győr and the neighboring settlements. The development will be carried out inside the fences of the existing plant. The structures to be constructed are: dispatching structure, denitrification and areation basins, secondary settlers, recirculation pump station, sludge digestion, dewatering, drying and/or composting. The extended capacity will reach the 80,000 cum/d level.

3.2. Primary Needs for the Project

The effluent quality should reach the requirements of the VI class of the Bill on the wastewater fine. This can not be reached without the planned development. The water related ecosystems of the recipient; the Old Danube Oxbow would be endangered in the lack of the second step of development of the existing wastewater treatment plant.

3.3. Status of the Project Preparation

Feasibility study was prepared in 1997 according to the World Bank standard, in English.

3.4. Technology Proposed

Biological treatment with denitrification, sludge digestion with gas utilization at the wastewater treatment plant.

3.5. Ownership of the Project Site

The plot of the STP is owned by local government.

3.6. Specific Project Items

The development project should be implemented on a running wastewater treatment plant.

4. Project Effects and Interactions

4.1. Public's Expression of Interest

There is an intensive ongoing wastewater collection development project in the town near to be finalized (up to 100 % canalization). The STP development will be built inside the existing plant. A general acceptance can be experienced among the inhabitants.

There are objections with the existing plant regarding its odor effect owed to the lack of proper sludge treatment. It is also not unusual that the raw wastewater arrives in anaerobic condition to the plant due to the long residential time of the sewer system. It is hoped that the development will solve these problems.

4.2. Environmental Impact Assessment

Detailed EIA was prepared and accepted.

4.3. Sensitivity of Locality/Receptor

The recipient is the Mosoni Duna oxbow with artificially regulated flow. The water speed is about 0,4 – 0,6 m/s in case of 20cum/s mean flow. The water here is sensitive for eutrophication due to its high nutrient content.

4.4. Primary Effects of the Project

On local level	The tow will be in compliance with the effluent standards. The danger for eutrophication of the Mosoni Duna oxbow will be decreased.
On regional level	The pollution load of Danube will decrease.
On international level	The tow will fulfil the EU standard on urban wastewater directive.

5. Economic Project Justification

5.1. Economic Project Benefits

- *Saved investment cost (compared to without project case);*
  Total investment cost estimate for the projects:
  Planned: 2,600 million HUF (12.67 million USD)
- *Employment/income effects:(1999-2001)*
  - during construction period (3 years):
    Employment effect:
    for 1 year:
    40 x 12 man/month = 480 man/month
    for the construction period:
    480 x 3 = 1,440 man/month
    Income effect:
    for the whole construction period:
    144 million HUF 0.70 million USD

- during operation period: (from 2002)
  Employment effect annually:
  10 x 12 man/month = 120 man/month
  Income effect:
  14.4 million HUF 0.07 million USD

5.2. Economic Internal Rate of Return of the Project (EIRR):

Not calculated

6. Financial Viability

6.1. Estimated Investment Cost

- Total investment cost: 2,600 million HUF (12.67 million USD).
- Allocation of capital cost for the project period: 1st year 10%, 2nd year 45%, 3rd year 45% of total cost.

Name	Million HUF	Million USD
Land	0.00/0.00	0.00/0.00
*Construction and machinery		
- 1st year	232.00	1.14
- 2nd year	1,041.00	5.07
- 3rd year	1,041.00	5.07
**36% : 54%*		
Planning and Supervision		
- 1st year	28.00	0.13
- 2nd year	129.00	0.63
- 3rd year	129.00	0.63
TOTAL COST		
- 1st year	**260.00**	**1.27**
- 2nd year	**1,170.00**	**5.70**
- 3rd year	**1,170.00**	**5.70**

- Year of cost estimate: 1998
- Nature of cost estimate: Draft, preliminary

6.2. Estimated Operational Cost

- Expected annual (operational) recurrent cost (in real terms):
  461 million HUF 2.25 million USD
- Repair and replacement cost:
  51 million HUF 0.25 million USD
- Total operational cost:
  512 million HUF 2.50 million USD
- Year of estimate: 1998
- Nature of cost estimate: Draft, preliminary

6.3. Estimate of Revenues

- Expected annual revenues (in real terms):
  527 million HUF 2.57 million USD
- Year of estimate: 1998
- Nature of revenue estimate: Draft, preliminary

6.4. Financial Internal Rate of Return of the Project (FIRR) :

Not calculated

6.5. Anticipated/proposed funding scheme for the whole project period (million HUF):

Source of Funding	Secured (million HUF)	Requested (million HUF)	Non-Secured (million HUF)
(1) Equity of project owner	520.00	520.00	0.00
(2) National Environmental Fund	0.00	780.00	780.00
(3) Water Management Fund	0.00	0.00	0.00
(4) Public loan – Central budget	0.00	0.00	0.00
(5) Public loan – Regional budget	0.00	0.00	0.00
(6) Public loan – Municipal budget	0.00	0.00	0.00
(7) Public grant – Central budget	407.00	650.00	243.00
(8) Public grant – Regional budget	0.00	0.00	0.00
(9) Public grant – Municipal budget	0.00	0.00	0.00
(10) International loan	0.00	0.00	0.00
(11) International grant	0.00	650.00	650.00
(12) Commercial bank loan	0.00	0.00	0.00
(13) Other sources	0.00	0.00	0.00
TOTAL FUNDS/REQUIREMENTS:	927.00	2,600.00	1,673.00

Anticipated/proposed funding scheme for the whole project period (million HUF):

Source of Funding	Secured (million USD)	Requested (million USD)	Non-Secured (million USD)
(1) Equity of project owner	2.53	2.53	0.00
(2) National Environmental Fund	0.00	3.80	3.80
(3) Water Management Fund	0.00	0.00	0.00
(4) Public loan – Central budget	0.00	0.00	0.00
(5) Public loan – Regional budget	0.00	0.00	0.00
(6) Public loan – Municipal budget	0.00	0.00	0.00
(7) Public grant – Central budget	1.99	3.17	1.18
(8) Public grant – Regional budget	0.00	0.00	0.00
(9) Public grant – Municipal budget	0.00	0.00	0.00
(10) International loan	0.00	0.00	0.00
(11) International grant	0.00	3.17	3.17
(12) Commercial bank loan	0.00	0.00	0.00
(13) Other sources	0.00	0.00	0.00
TOTAL FUNDS / REQUIREMENTS:	4.52	12.67	8.15

Project 4

Dunaujváros Wastewater Treatment Plant Construction

Date of first setting up: September, 1998

Date of latest upgrade:

Project Title: Construction of the Wastewater Treatment Plant at Dunaujvaros

Responsible/Legal Body

Authority

Name:	Local Government of Dunaujvaros
Address:	2400 Dunaujvaros, Varoshatza square 1
Telephone:	36 25 41 22 11
Fax:	36 25 41 22 11
E-mail:	

Project target: Treatment of the wastewater collected by the existing sewer system.

Investment Costs: 2,182 million HUF (10.64 million USD)

Status of the Project: Tender for construction is under evolution.

Language of Project Documents:

Hungarian, partly English (PHARE report, tendering documentation)

1. Project Title: Construction of the Wastewater Treatment Plant at Dunaujvaros Region

2. Investor Details

2.1. Authority/Company

Name: Local Government of Dunaujvaros

Address: 2400 Dunaujvaros, Varoshaza square 1

Telephone: 36 25 41 22 11

Fax: 36 25 41 22 11

E-mail:

2.2. Contact Persons

Zoltan GAL, director of the Bureau for Town Development

2.3. Advisor, Consultant

Klara TÓTH +36 30 9493 397

Sandor KISGYÖRGY +36 30 9513 487

2.4. Legal/Financial Status

Local Government elected in 1994.

2.5. Authority/Company Profile

Management of the town with 40,000 persons inhabitants.

2.6. Planning/Implementing Extent/Capacity of the Investor

Investment management: 3 persons.

2.7. Institutions/Enterprises beside the Investor

Mid-Transdanubian Water Directorate

Mid-Transdanubian Environmental Inspectorate

Waterworks of Dunaujvaros

3. Project Description

3.1. A Project Ooutline

The beneficiaries of the project are the local inhabitants of the town. The planned site of the wastewater treatment plant is at the bank of Danube designated especially for that use by the physical development plan. The planned elements of the project are twin pressure pipe to the STP, normal biological treatment plant. The sludge will be used for rehabilitation at the tailing pond of the iron smelter existing in the town.

3.2. Primary Needs for the Project

The town has been nearly totally canalized, with special regard for the sensitive soil mechanical conditions (lois). The collected wastewater goes to Danube without any treatment now. The effect on the water was on medium level due to the high dilution capacity of the recipient. This situation can be tolerable only for a short time as it is incompatible with the national goal for treatment the wastewater of all settlements bigger than 2,000 inhabitants, according to the EU requirements.

3.3. Status of the Project Preparation

The project has been prepared for tendering. The preliminary permit for water right and the environmental permit are available.

Feasibility study was prepared in English according to the World Bank standards.

3.4. Technology Proposed

Pressure pipe, with 1-km length, STP with biological treatment, without nutrient removal. The sludge will be thickened, digested, secondary thickening up to 25 % dry solids. The treated sludge will be used for the restoration of the industrial waste dump of DUNAFERR.

3.5. Ownership of the Project Site

The local government owns the site, the sludge utilization site is owned by the DUNAFERR Company.

3.6. Specific Project Items

High construction costs due to the poor soil conditions.

4. Project Effects and Interactions

4.1. Public's Expression of Interest

Survey is planned on the opinion of the population. There cannot be experienced strong objection against the project. The layer of the inhabitants sensitive for environmental issues promotes the development. A part of the inhabitants worries about the possible increase in the fees of water services.

4.2. Environmental Impact Assessment

Detailed EIIA was prepared and adopted.

4.3. Sensitivity of Locality/Receptor

There is an industrial water intake from Danube immediately downstream to the wastewater outlet. This water is partly used for drinking water production to the industrial company named as DUNAFERR.

Danube is not strong sensitive for the pollution load due to its high dilution capacity.

4.4. Primary Effects of the Project

Locally the safety of downstream drinking water production increases.

Regionally and in international context: Mid level effect on Danube regarding the pollution load reaching the river. Compliance with the EU directive on urban wastewater treatment.

5. Economic Project Justification

5.1. Economic Project Benefits

- *Saved investment cost (compared to without project case);*
  Total investment cost estimate for the projects: Planned 2.182 million HUF (10.64 million USD)
- *Employment/income effects:*
  - during construction period (2 years):
    Employment effect:
    for 1 year
    30-40 x 12 man/month =360-480 man/month
    for the construction period
    (360-480) x 2 =720-960 man/month
    Income effect:
    for the whole construction period
    57.6-76.8 million HUF 0.28-0.38 million USD

- during operation period:
  Employment effect annually
  20-25 x 12 man/month =240-300 man/month
  Income effect
  28.80-36 million HUF 0.14-0.18 million USD

5.2. Economic Internal Rate of Return of the Project (EIRR):

Not calculated

6. Financial Viability

6.1. Estimated Investment Cost

- Total investment cost: 2,182.00 million HUF (10.64 million USD)
- Allocation of capital cost for the project period of 2 years, equally allocated on annual basis:

Name	Million HUF	Million USD
Land	0.00/0.00	0.00/0.00
*Construction and Machinery		
- for 2 years	1,963.80	9.58
- p.a.	981.90	4.79
Planning and Supervision		
- for 2 years	218.20	1.06
- p.a.	109.10	0.53
TOTAL COST		
- for 2 years	**2,182.00**	**10.64**
- p.a.	**1,091.00**	**5.32**

- Year of cost estimate: 1998
- Nature of cost estimate: Official Offer

6.2. Estimated Operational Cost

- Expected annual (operational) recurrent cost (in real terms):
  450 million HUF 2.19 million USD
- Repair and replacement cost:
  49 million HUF 0.24 million USD
- Total operational cost:
  499 million HUF 2.43 million USD
- Year of estimate: 1998
- Nature of cost estimate: Draft, preliminary

6.3. Estimate of Revenues

- Expected annual revenues (in real terms):
  518 million HUF 2.52 million USD
- Year of estimate: 1998
- Nature of revenue estimate: Draft, preliminary

6.4. Financial Internal Rate of Return of the Project (FIRR):

Not calculated

6.5. Anticipated/proposed funding scheme for the whole project period (million HUF):

Source of Funding	Secured (million HUF)	Requested (million HUF)	Non-Secured (million HUF)
(1) Equity of project owner	645.00	645.00	0.00
(2) National Environmental Fund	0.00	0.00	0.00
(3) Water Management Fund	0.00	0.00	0.00
(4) Public loan - Central budget	0.00	0.00	0.00
(5) Public loan - Regional budget	0.00	0.00	0.00
(6) Public loan - Municipal budget	0.00	0.00	0.00
(7) Public grant - Central budget	690.00	690.00	0.00
(8) Public grant - Regional budget	0.00	0.00	0.00
(9) Public grant - Municipal budget	0.00	0.00	0.00
(10) International loan	460.00	460.00	0.00
(11) International grant	387.00	387.00	0.00
(12) Commercial bank loan	0.00	0.00	0.00
(13) Other sources	0.00	0.00	0.00
TOTAL FUNDS/REQUIREMENTS:	2,182.00	2.182.00	0.00

Anticipated/proposed funding scheme for the whole project period (million USD):

Source of Funding	Secured (million USD)	Requested (million USD)	Non-Secured (million USD)
(1) Equity of project owner	3.14	3.14	0.00
(2) National Environmental Fund	0.00	0.00	0.00
(3) Water Management Fund	0.00	0.00	0.00
(4) Public loan - Central budget	0.00	0.00	0.00
(5) Public loan - Regional budget	0.00	0.00	0.00
(6) Public loan - Municipal budget	0.00	0.00	0.00
(7) Public grant - Central budget	3.36	3.36	0.00
(8) Public grant - Regional budget	0.00	0.00	0.00
(9) Public grant - Municipal budget	0.00	0.00	0.00
(10) International loan	2.24	2.24	0.00
(11) International grant	1.90	1.90	0.00
(12) Commercial bank loan	0.00	0.00	0.00
(13) Other sources	0.00	0.00	0.00
TOTAL FUNDS/REQUIREMENTS:	10.64	10.64	0.00

Project 5

Szolnok Wastewater Collection Development

Date of first setting up: September, 1998

Date of latest upgrade:

Project Title: Finalization of the sewerage of Szolnok town and the neighboring 11 settlements

Responsible/Legal Body

Authority/Company:

Name:	Local government of Szolnok town
	The Major's Bureau
Address:	5 000 Szolnok Kossuth square 9.
Telephone:	36 56 374 111
Fax:	36 56 425 805
E-mail:	

Project target: Finalization of the canalization of Szolnok town, and the 11 settlements around the town.

Investment Costs: Planned: 2,100 million HUF (10.24 million USD)

Status of the Project: Design for preliminary water license has been finished.

Feasibility Study is due to be finished by November 1998.

Language of Project Documents:

Hungarian, there is no English documentation

1. Project Title: Finalization of the sewerage of Szolnok town and the neighboring 11 settlements

2. Investor Details

2.1. Authority/Company

Name: Local government of Szolnok town
The Major's Bureau
Address: 5 000 Szolnok Kossuth square 9.
Telephone: 36 56 374 111
Fax: 36 56 425 805
E-mail:

2.2. Contact Persons

Mrs. Péter TÁBOR senior counselor
Water and Wastewater Works of Szolnok, 5 000 Szolnok Vízmű St. 1.

2.3. Advisor, Consultant

Water and Wastewater Works of Szolnok, the future operator
Fines LTD as consultant
VMINFO LTD as designer

2.4. Legal/Financial Status

Local government elected in 1994.

2.5. Authority/Company Profile

Responsibility for management of the town with 80,000 inhabitants.

2.6. Planning/Implementing Extent/Capacity of the Investor

There is no investment management capacity.
Contractor for design, consulting and construction work will be chosen on the basis of tendering.

2.7. Institutions/Enterprises beside the Investor

Mid Tisza-region Water Directorate
Mid Tisza-region Environmental Inspectorate
Service for Hygiene at Szolnok

3. Project Description

3.1. A Project Outline

The project is targeted on 25-km long sewer pipeline and house connections with 25-km total length. Additional 18 pieces of pump stations and pressure pipe to the wastewater treatment plant.

3.2. Primary Needs for the Project

The amount of the untreated wastewater led into the soil will be decreased by 700 cum/d.

The unsewered part of the town should be canalized.

The groundwater table increased by infiltrated wastewater should be decreased.

3.3. Status of the Project Preparation

The preliminary licensing procedure has started.

The feasibility study will be finalized by November 1998.

3.4. Technology Proposed

Gravity sewer system, with pressure pipe connection to the wastewater treatment plant under construction.

3.5. Ownership of the Project Site

The site of the project development is in public ownership.

3.6. Specific Project Items

The project fits to the existing sewer system and to the design capacity of the wastewater treatment plant.

4. Project Effects and Interactions

4.1. Public's Expression of Interest

There is a high level of interest from the side of the public due to the fact that there is no possibility for new house licenses without possibility for sewer connection.

4.2. Environmental Impact Assessment

EIA is not needed.

4.3. Sensitivity of Locality/Receptor

The area is in connection with the Holt Tisza oxbow, which is the raw drinking water reserve of Szolnok town in the case of accidental pollution in the river.

4.4. Primary Effects of the Project

Local effects:	Decrease the pollution load into the soil and into the oxbow via the groundwater.
	Further possibility for house connection.
Regional, international effects:	Limited

5. Economic Project Justification

5.1. Economic Project Benefits

- *Saved investment cost (compared to without project case);*

  Total investment cost estimate for the projects:

  Planned: 2,100 million HUF (10.24 million USD)

- *Employment/income effects:(1999-2000)*

- during construction period (2 years):

  Employment effect:

  for 1 year:

  120 x 12 man/month = 2400 man/month

  for the construction period:

  2400 x 2 = 4800 man/month

  Income effect:

  for the whole construction period:

  288 million HUF 1.4 million USD

- during operation period: (after 2000)

  Employment effect annually:

  None.

  Income effect:

  None.

5.2. Economic Internal Rate of Return of the Project (EIRR):

Not calculated

6. Financial Viability

6.1. Estimated Investment Cost

- Total investment cost: 2,100.00 million HUF (10.24 million USD)
- Allocation of capital cost for the project period of 2 years, equally allocated on annual basis:

Name	Million HUF	Million USD
Land for 2yrs/p.a.	30.00/15.00	0.15/0.07
*Construction and Machinery		
- for 2 yr.	1,860.00	9.07
- p.a.	930.00	4.54
**36% : 54%*		
Planning and Supervision		
- for 2 yr.	210.00	1.02
- p.a.	105.00	0.51
TOTAL COST		
- for 2 yr.	**2,100.00**	**10.24**
- p.a.	**1,050.00**	**5.12**

- Year of cost estimate: 1998
- Nature of cost estimate: Draft, preliminary

6.2. Estimated Operational Cost

- Expected annual (operational) recurrent cost (in real terms):
  42 million HUF 0.20 million USD
- Repair and replacement cost:
  32 million HUF 0.16 million USD
- Total operational cost:
  74 million HUF 0.36 million USD
- Year of estimate: 1998
- Nature of cost estimate: Draft, preliminary

6.3. Estimate of Revenues

- Expected annual revenues (in real terms):
  76 million HUF 0.37 million USD
- Year of estimate: 1998
- Nature of revenue estimate: Draft, preliminary

6.4. Financial Internal Rate of Return of the Project (FIRR) :

Not calculated

6.5. Anticipated/proposed funding scheme for the whole project period (million HUF):

Source of Funding	Secured (million HUF)	Requested (million HUF)	Non-Secured (million HUF)
(1) Equity of project owner	0.00	693.00	693.00
(2) National Environmental Fund	0.00	210.00	210.00
(3) Water Management Fund	0.00	105.00	105.00
(4) Public loan – Central budget	0.00	0.00	0.00
(5) Public loan – Regional budget	0.00	0.00	0.00
(6) Public loan – Municipal budget	0.00	0.00	0.00
(7) Public grant – Central budget	0.00	840.00	840.00
(8) Public grant – Regional budget	0.00	0.00	0.00
(9) Public grant – Municipal budget	0.00	0.00	0.00
(10) International loan	0.00	0.00	0.00
(11) International grant	0.00	0.00	0.00
(12) Commercial bank loan	0.00	0.00	0.00
(13) Other sources/population	0.00	252.00	252.00
TOTAL FUNDS/REQUIREMENTS:	0.00	2,100.00	2,100.00

Anticipated/proposed funding scheme for the whole project period (million USD):

Source of Funding	Secured (million USD)	Requested (million USD)	Non-Secured (million USD)
(1) Equity of project owner	0.00	3.38	3.38
(2) National Environmental Fund	0.00	1.02	1.02
(3) Water Management Fund	0.00	0.51	0.51
(4) Public loan - Central budget	0.00	0.00	0.00
(5) Public loan – Regional budget	0.00	0.00	0.00
(6) Public loan – Municipal budget	0.00	0.00	0.00
(7) Public grant - Central budget	0.00	4.09	4.09
(8) Public grant - Regional budget	0.00	0.00	0.00
(9) Public grant - Municipal budget	0.00	0.00	0.00
(10) International loan	0.00	0.00	0.00
(11) International grant	0.00	0.00	0.00
(12) Commercial bank loan	0.00	0.00	0.00
(13) Other sources/population	0.00	1.24	1.24
TOTAL FUNDS/REQUIREMENTS:	0.00	10.24	10.24

Project 6

Szeged Wastewater Treatment Development

Date of first setting up: September, 1998

Date of latest upgrade:

Project Title: Construction of the wastewater treatment plant of Szeged, Mechanical Treatment I/b Phase

Responsible/Legal Body

Authority/Company:

Name:	Major's bureau of Szeged town
Address:	6745 Szeged, Széchenyi square 11
Telephone:	36 62 474 575, 36 62 421 236
Fax:	36 62421 352
E-mail:	muszaki.iroda@polg.hiv.szeged.hu

Project target: To decrease the pollution load reaching the Tisza River according to the Hungarian and EU standards

- To decrease the possibility of international conflicts along the border.
- Protection of fresh waters.
- To give possibility for increasing the extension of the sewer system in the town.

Investment Costs: Planned: 1,350 million HUF (6.58 million USD)

Status of the Project: The tender documentation is being prepared.

Language of Project Documents:

Hungarian, partly English (PHARE report from 1995).

1. Project Title: Construction of the wastewater treatment plant of Szeged, Mechanical Treatment I/b Phase

2. Investor Details

2.1. Authority/Company

Name: Major's bureau of Szeged town

Address: 6745 Szeged, Széchenyi square11

Telephone: 36 62 474 575, 36 62 421 236

Fax: 36 62421 352

E-mail: muszaki.iroda@polg.hiv.szeged.hu

2.2. Contact Persons

Miklos NAGYPÁL, director

Mrs. Tamás PAPP senior counselor

2.3. Advisor, Consultant

Mélyépterv Complex Company (construction design)

OVIBER Company (engineering, consulting)

2.4. Legal/Financial Status

Local government elected in 1994.

2.5. Authority/Company Profile

Management of town Szeged with 80,000 persons inhabitants.

Budget	in 1996	19,2 billion HUF
	in 1997	25,3 billion HUF
	in 1998	21,1 billion HUF

2.6. Planning/Implementing Extent/Capacity of the Investor

There is no design, project preparation capacity.

2.7. Institutions/Enterprises beside the Investor

As in point 2.3.

Construction contractor will be chosen based on public procurement rules.

3. Project Description

3.1. A Project Outline

Mechanical treatment system will be built in the I/a phase with the aim of continuation the wastewater treatment plant development.

Design capacity for the STP is 60,000 cum/d, sludge line for 4,000 cum/d.

The construction will be carried out on the site having designated for the STP.

3.2. Primary Needs for the Project

To decrease the pollution load reaching the Tisza River according to the Hungarian and EU standards.

- To decrease the possibility of international conflicts along the border.
- Protection of fresh waters.
- To give possibility for increasing the extension of the sewer system in the town.

3.3. Status of the Project Preparation

The tender documentation is being prepared.

3.4. Technology Proposed

The designed technology is: preliminary settling, sludge digestion, sludge dewatering.

3.5. Ownership of the Project Site

The site is in the ownership of the local government.

3.6. Specific Project Items

The construction work should be carried out taking into consideration that the next development step will likely be started parallel.

4. Project Effects and Interactions

4.1. Public's Expression of Interest

The local inhabitants are interested in the project as there is limitation on house construction on unsewered areas, and there is a ban on sewer extension without wastewater treatment plant development. The high groundwater table causes also problems on unsewered areas.

4.2. Environmental Impact Assessment

Detailed environmental impact assessment was adopted.

4.3. Sensitivity of Locality/Receptor

The recipient of the Tisza River has high dilution capacity, so the local effect of the project will be limited. The untreated water causes serious problems on the water quality of the reservoir of Tiszbecse in Serbia Republic in hot weather conditions.

4.4. Primary Effects of the Project

Decrease the pollution load of the Tisza River.

Increases the water quality at the Dunabecse reservoir.

The town will take the first step to reach the EU standards on urban wastewater treatment.

5. Economic Project Justification

5.1. Economic Project Benefits

- *Saved investment cost (compared to without project case);*
  Total investment cost estimate for the projects:
  Planned: 1,350 million HUF (6.58 million USD)
- *Employment/income effects: (1999-2000)*
  - during construction period (2 years):
    Employment effect:
    for 1 year:
    30-40 x 12 man/month = 360-480 man/month
    for the construction period:
    (360 - 480) x 2 = 720-960 man/month
    Income effect:
    for the whole construction period:
    57.6-76.8 million HUF 0.28-0.38 million USD
  - during operation period: (after 2000)
    Employment effect annually:
    20-25 x 12 man/month = 240-300 man/month
    Income effect:
    28.80-36 million HUF 0.14-0.18 million USD

5.2. Economic Internal Rate of Return of the Project (EIRR):

Not calculated

6. Financial Viability

6.1. Estimated Investment Cost

- Total investment cost: 1,350.00 million HUF (6.58 million USD)
- Allocation of capital cost for the project period of 2 years, equally allocated on annual basis:

Name	Million HUF	Million USD
Land	0.00/0.00	0.00/0.00
*Construction and Machinery		
- for 2 yr.	1,290.00	6.29
- p.a.	645.00	3.14
**36% : 54%*		
Planning and Supervision		
- for 2 yr.	60.00	0.29
- p.a.	30.00	0.15
TOTAL COST		
- for 2 yr.	**1,350.00**	**6.58**
- p.a.	**675.00**	**3.29**

- Year of cost estimate: 1998
- Nature of cost estimate: Draft, preliminary

6.2. Estimated Operational Cost

- Expected annual (operational) recurrent cost (in real terms):
  million HUF million USD
  Note: approximately of the total investment cost.
- Repair and replacement cost:
  million HUF million USD
- Total operational cost:
  million HUF million USD
- Year of estimate: 1998
- Nature of cost estimate: Draft, preliminary

6.3. Estimate of Revenues

- Expected annual revenues (in real terms):
  million HUF million USD
- Year of estimate: 1998
- Nature of revenue estimate: Draft, preliminary

6.4. Financial Internal Rate of Return of the Project (FIRR):

Not calculated

6.5 Anticipated/proposed funding scheme for the whole project period (million HUF):

Source of Funding	Secured (million HUF)	Requested (million HUF)	Non-Secured (million HUF)
(1) Equity of project owner	480.00	480.00	0.00
(2) National Environmental Fund	0.00	227.00	227.00
(3) Water Management Fund	0.00	171.00	171.00
(4) Public loan - Central budget	0.00	0.00	0.00
(5) Public loan - Regional budget	0.00	0.00	0.00
(6) Public loan - Municipal budget	0.00	0.00	0.00
(7) Public grant - Central budget	203.00	203.00	0.00
(8) Public grant - Regional budget	0.00	0.00	0.00
(9) Public grant - Municipal budget	0.00	0.00	0.00
(10) International loan	0.00	0.00	0.00
(11) International grant	0.00	269.00	269.00
(12) Commercial bank loan	0.00	0.00	0.00
(13) Other sources	0.00	0.00	0.00
TOTAL FUNDS/REQUIREMENTS:	683.00	1350.00	667.00

Anticipated/proposed funding scheme for the whole project period (million HUF):

Source of Funding	Secured (million USD)	Requested (million USD)	Non-Secured (million USD)
(1) Equity of project owner	2.34	2.34	0.00
(2) National Environmental Fund	0.00	1.11	1.11
(3) Water Management Fund	0.00	0.83	0.83
(4) Public loan - Central budget	0.00	0.00	0.00
(5) Public loan - Regional budget	0.00	0.00	0.00
(6) Public loan - Municipal budget	0.00	0.00	0.00
(7) Public grant - Central budget	0.99	0.99	0.00
(8) Public grant - Regional budget	0.00	0.00	0.00
(9) Public grant - Municipal budget	0.00	0.00	0.00
(10) International loan	0.00	0.00	0.00
(11) International grant	0.00	1.31	1.31
(12) Commercial bank loan	0.00	0.00	0.00
(13) Other sources	0.00	0.00	0.00
TOTAL FUNDS/REQUIREMENTS:	3.33	6.58	3.25

Project 7

MOL Company Wastewater Development Programme

Date of first setting up: September, 1998

Date of latest upgrade:

Project Title: Water and wastewater development program at the Danube refinery of the MOL Company

Responsible/Legal Body

Authority/Company:

Name:	The Danube Refinery of MOL Company
Address:	H-2443 Százhalombatta, PBX. 1.
Telephone:	36 23 552 303,
Fax:	36 23 552 358
E-mail:	ekkatona@mol.hu
	skvassai@mol.hu

Project target:	Decrease of the pollution load leaving the refinery. Decrease the industrial water amount used. Development of the level of industrial water management inside the refinery.
Planned investment:	10,000 Million HUF (48.74 million USD)
Status of the Project:	The project documentation is under preparation.

Language of Project Documents:

Hungarian

1. Project Title: Water and wastewater development program at the Danube refinery of the MOL Company

2. Investor Details

2.1. Authority/Company

Name: The Danube Refinery of MOL Company

Address: H-2443 Százhalombatta, Pox. 1.

Telephone: 36 23 552 303,

Fax: 36 23 552 358

E-mail: ekkatona@mol.hu

skvassai@mol.hu

2.2. Contact Persons

Gyula POGÁNY, director 36 23 552 303

Lajos ÖRSI head of division

2.3. Advisor, Consultant

OLAJTERV Company (construction design, consulting)

2.4. Legal/Financial Status

Budget Institution with 50 person employees

2.5. Authority/Company Profile

The MOL is the biggest company in Hungary in 1997. It is active in the field of oil and gas survey and mining, gas refining, transportation, and storage, oil refining and retail, oil products marketing.

Net sales revenues: 497,6 Billion HUF

Net income: 22,7 Billion HUF

2.6. Planning/Implementing Extent/Capacity of the Investor

There is an investment directorate with 200 employees. The investment management capacity is 30-50 billion HUF/a.

Design, project preparation: 3 persons.

2.7 Institutions/Enterprises beside the Investor

Mid Danube valley Water Directorate

Mid Danube valley Environmental Inspectorate

Local and Regional Institute on Hygiene

Local governments of Százhalombatta and Ercsi

3. Project Description

3.1. A Project Outline

The project is targeted on the survey and evaluation of the existing stage water and wastewater systems of the oil refinery. Development of the industrial water management system with special regard for the decrease of water used.

Construction of a new central biological treatment plant.

3.2. Primary Needs for the Project

The amount of used water is 42,000 cum/d. The existing wastewater treatment plant capacities are low compared with this value.

The yearly amount of oil led into Danube reaches the 80-t level. This oil has not caused noncompliance with the effluent standards due to the big amount of water used. (The effluent limit is given in concentration level.).

Theoretically there is a possibility for reduction of oil pollution down to 20 %.

3.3. Status of the Project Preparation

The project is emerging now.

The strategic concept is available.

There are parts of the project worked out in detail, and even in the stage of implementation.

The general integrated water management concept should be prepared.

3.4. Technology Proposed

The technologies needed are well known in the oil industry, but they can not be introduced in detail due the preliminary stage of design.

3.5. Ownership of the Project Site

The site of the project is in the ownership of the Company.

3.6. Specific Project Items

The project should be implemented inside of the operating oil refinery.

4. Project Effects and Interactions

4.1. Public's Expression of Interest

The steps for reaching public acceptance have not been taken. The MOL Company generally has good connections with the public.

4.2. Environmental Impact Assessment

EIA is needed, but has not been prepared

4.3. Sensitivity of Locality/Receptor

The area lies in the neighborhood of the vulnerable groundwater resources at Ercsi.

The bankfiltered water resources of Dunaujváros are close to the pollution outlet.

4.4. Primary Effects of the Project

Locally and regionally: the amount of the used and treated industrial water will be decreased, and the pollution load leaving the plant will decrease also.

The probability of accidental pollution could be decreased also by the inside emergency installation to be developed.

On international level: the proposed development can contribute to the pollution reduction of Danube on international level also.

5. Economic Project Justification

5.1. Economic Project Benefits

- *Saved investment cost (compared to without project case);*
  Total investment cost estimate for the projects:
  Planned: 10,000 Million HUF (48.74 million USD)
- *Employment/income effects:*
  - during construction period (5 years):
    <u>Phase I (1999-2001):</u>
    Employment effect:
    0 new/extra employee is needed
    Income effect:
    0
    <u>Phase II (2002 - 2003):</u>
    Employment effect:
    30 man x 24 months = 720 man/month
    Income effect:
    57.60 million HUF 0.28 million USD

- during operation period:
  Phase I: (1999-2001)
  Employment effect:
  0 new/extra employee is needed
  Income effect:
  0
  Phase II: (2001-2003)
  Employment effect annually:
  5 man x 12 months = 60 man/months
  Income effect annually:
  7.20 M HUF 0.04 M USD

5.2 Economic Internal Rate of Return of the Project (EIRR):

Not calculated

6. Financial Viability

6.1. Estimated Investment Cost

- Total investment cost: 10,000.00 million HUF (48.74 million USD)
- Allocation of capital cost for the project period of 5 years:

Name	Million HUF	Million USD
Land	0.00/0.00	0.00/0.00
*Construction and Machinery (for 5 years) ** 54% : 36 %*	5,400.00 3,600.00	26.32 17.55
Planning and Supervision – for 5 years *10%*	1,000.00	4.87
TOTAL COST of I + II PHASE: (for 5 years)	**10,000.00**	**48.74**

- Year of cost estimate: 1998
- Nature of cost estimate: Preliminary, before evaluating the offers.

6.2. Estimated Operational Cost

- Expected annual (operational) recurrent cost (in real terms):
  500.00 million HUF 2.44 million USD
- Repair and replacement cost:
  6-700.00 million HUF 2.92-3.41 million USD
- Total operational cost:
  1,200.00 million HUF 5.85 million USD
- Year of estimate: 1998
- Nature of cost estimate: Draft, preliminary

6.3. Estimate of Revenues

- Expected annual revenues (in real terms):
  0
- Year of estimate: 1998
- Nature of revenue estimate: Draft, preliminary

6.4. Financial Internal Rate of Return of the Project (FIRR):

Not calculated

6.5. Anticipated/proposed funding scheme for the whole project period (million HUF):

Source of Funding	Secured (million HUF)	Requested (million HUF)	Non-Secured (million HUF)
(1) Equity of project owner	4,000.00	4,000.00	0.00
(2) National Environmental Fund	0.00	500.00	500.00
(3) Water Management Fund	0.00	500.00	500.00
(4) Public loan - Central budget	0.00	0.00	0.00
(5) Public loan - Regional budget	0.00	0.00	0.00
(6) Public loan - Municipal budget	0.00	0.00	0.00
(7) Public grant - Central budget	0.00	0.00	0.00
(8) Public grant - Regional budget	0.00	0.00	0.00
(9) Public grant – Municipal budget	0.00	0.00	0.00
(10) International loan	0.00	5,000.00	5,000.00
(11) International grant	0.00	0.00	0.00
(12) Commercial bank loan	0.00	0.00	0.00
(13) Other sources	0.00	0.00	0.00
TOTAL FUNDS/REQUIREMENTS:	4000.00	10,000.00	6,000.00

Anticipated/proposed funding scheme for the whole project period (million HUF):

Source of Funding	Secured (million USD)	Requested (million USD)	Non-Secured (million USD)
(1) Equity of project owner	19.50	19.50	0.00
(2) National Environmental Fund	0.00	2.44	2.44
(3) Water Management Fund	0.00	2.44	2.44
(4) Public loan – Central budget	0.00	0.00	0.00
(5) Public loan – Regional budget	0.00	0.00	0.00
(6) Public loan – Municipal budget	0.00	0.00	0.00
(7) Public grant – Central budget	0.00	0.00	0.00
(8) Public grant – Regional budget	0.00	0.00	0.00
(9) Public grant – Municipal budget	0.00	24.36	24.36
(10) International loan	0.00	0.00	0.00
(11) International grant	0.00	0.00	0.00
(12) Commercial bank loan	0.00	0.00	0.00
(13) Other sources	0.00	0.00	0.00
TOTAL FUNDS/REQUIREMENTS:	19.50	48.74	29.24

Project 8

Nitrokemia Company Wastewater Reconstruction Programme

Date of first setting up: September, 1998

Date of latest upgrade:

Project Title: General reconstruction of the wastewater treatment system of the Nitrokémia Company

Responsible/Legal Body

Authority/Company:

Name:	NITROKÉMIA Company
Address:	Balatonfûzfõ
Telephone:	36 88 35 20 11
Fax:	36 88 35 20 11
E-mail:	

Project target: The pollution load reaching the recipient Séd-Nádor water system should be decreased to fulfil the authority requirements. The new regulation under development will set up stricter effluent standards compared with the existing. The requirements of the agricultural water uses (fishponds) downstream should be fulfilled also.

Investment Costs: 1,200.00 million HUF (5.85 million USD)

Status of the Project: The level of preparation is different depending on the elements of the future project:

The wastewater treatment plant is ready for tendering.

EIA was prepared but it is outdated today.

Sewerage is on study level.

EIA is under preparation for sludge management.

Language of Project Documents:

Hungarian

1. Project Title: General reconstruction of the wastewater treatment system

2. Investor Details

2.1. Authority/Company

Name: NITROKÉMIA Company

Address: Balatonfûzfõ

Telephone: 36 88 35 20 11

Fax: 36 88 35 20 11

E-mail:

2.2. Contact Persons

György Morvai environmental director

2.3. Advisor, Consultant

Klára TOTH 36 309 493 397

Sándor KISGYÖRGY 36 309 513 487

2.4. Legal/Financial Status

Company with 100 % State ownership.

2.5. Authority/Company Profile

Production of chemical goods and intermediaries.

2.6. Planning/Implementing Extent/Capacity of the Investor

There is no design and investment preparation capacity.

2.7. Institutions/Enterprises beside the Investor

Mid-Transdanubian Water Directorate

Mid-Transdanubian Environmental Inspectorate

3. Project Description

3.1. A Project Outline

Main collector rehabilitation of the sewer system.

Reconstruction of the chemical line of the STP.

Reconstruction of the biological line of the STP.

Development of the sludge treatment technology.

3.2. Primary Needs for the Project

The basic goal is the compliance with the requirements of the environmental authority. Today the company is fined due to exceeding of the effluent standards.

The new environmental legislation will strike further the effluent requirements. The agricultural water uses are hindered downstream in the water system.

3.3. Status of the Project Preparation

The level of preparation is different depending on the elements of the future project:

The wastewater treatment plant is ready for tendering.

EIA was prepared but it is outdated today.

Sewerage is on study level.

EIA is under preparation for sludge management.

3.4. Technology Proposed

Specific treatment technology is needed due to the high organic matter content and poor degradability of the contaminants.

3.5. Ownership of the Project Site

The site of the project is owned by the company.

3.6. Specific Project Items

The project should be implemented among poor soil condition. The character of the ground is carstic.

4. Project Effects and Interactions

4.1. Public's Expression of Interest

The local inhabitants can not accept easily the activity of the company due to the fact that it is active in the neighborhood of the recreation area on the Balaton watershed.

Special care should be taken on public information by proving that the development will increase the quality of the environment around the industrial plant.

4.2. Environmental Impact Assessment

EIA was prepared but it is outdated today. New assessment is necessary.

4.3. Sensitivity of Locality/Receptor

The site of the plant is at about 1-km distance from the Lake Balaton, which is the major recreation area of Hungary. This area is extremely sensitive for environmental pollution and is in the focus of public interest.

The treated wastewater is lifted up from the watershed to the Séd Nádor water system, where there is no any dilution capacity usually. The poor water conditions hinder the use of the surface water in fishponds.

The site of the plant is on a carstic water reservoir, which is an important drinking water resource. The sewer system is in bad condition after an earthquake 40 years ago. The pollution seems to be likely, but it has not been proven.

4.4. Primary Effects of the Project

Locally the groundwater pollution will be decreased.

Regionally the water body of the Séd-Nádor water system will be protected with much higher extent. The general state of the environment around the plant will increase.

5. Economic Project Justification

5.1. Economic Project Benefits

- *Saved investment cost (compared to without project case);*
  Total investment cost estimate for the projects:
  Planned: 1,200.00 million HUF (5.85 million USD)
- *Employment/income effects:*
  - during construction period (2 years):
    Employment effect:
    For 1 year:
    30-35 x 12 man/month = 360-420 man/month
    for the construction period:
    (360 - 420) x 2 = 720-840 man/month

Income effect:
for the whole construction period:
57.6-67.20 million HUF 0.28-0.33 million USD

- during operation period:
  Employment effect annually:
  20-25 x 12 man/month = 240-300 man/month
  Income effect annually:
  28.80-36 million HUF 0.14-0.18 million USD

5.2. Economic Internal Rate of Return of the Project (EIRR):

Not calculated

6. Financial Viability

6.1. Estimated Investment Cost

- Total investment cost: 1,200.00 million HUF (5.85 million USD)
- Allocation of capital cost for the project period of 2 years, equally allocated on annual basis:

Name	Million HUF	Million USD
Land	0.00/0.00	0.00/0.00
*Construction and Machinery - for 2 yr. - p.a. ** 70% : 30 %*	 1,080.00 540.00	 5.26 2.63
Planning and Supervision - for 2 yr. - p.a.	 120.00 60.00	 0.59 0.30
TOTAL COST **- for 2 yr.** **- p.a.**	 **1,200.00** **600.00**	 **5.85** **2.93**

- Year of cost estimate: 1998
- Nature of cost estimate: Draft, preliminary

6.2. Estimated Operational Cost

- Expected annual (operational) recurrent cost (in real terms):
  585.00 million HUF 2.85 million USD
- Repair and replacement cost:
  65.00 million HUF 0.32 million USD
- Total operational cost:
  650.00 million HUF 3.17 million USD
- Year of estimate: 1998
- Nature of cost estimate: Draft, preliminary

6.3. Estimate of Revenues

- Expected annual revenues (in real terms):
  690.00 million HUF 3.37 million USD
- Year of estimate: 1998
- Nature of revenue estimate: Draft, preliminary

6.4. Financial Internal Rate of Return of the Project (FIRR):

Not calculated

6.5. Anticipated/proposed funding scheme for the whole project period (million HUF):

Source of Funding	Secured (million HUF)	Requested (million HUF)	Non-Secured (million HUF)
(1) Equity of project owner	0.00	120.00	120.00
(2) National Environmental Fund	0.00	300.00	300.00
(3) Water Management Fund	0.00	120.00	120.00
(4) Public loan – Central budget	0.00	0.00	0.00
(5) Public loan – Regional budget	0.00	0.00	0.00
(6) Public loan – Municipal budget	0.00	0.00	0.00
(7) Public grant – Central budget	0.00	0.00	0.00
(8) Public grant – Regional budget	0.00	0.00	0.00
(9) Public grant – Municipal budget	0.00	0.00	0.00
(10) International loan	0.00	600.00	600.00
(11) International grant	0.00	60.00	60.00
(12) Commercial bank loan	0.00	0.00	0.00
(13) Other sources	0.00	0.00	0.00
TOTAL FUNDS/REQUIREMENTS:	0.00	1,200.00	1,200.00

Anticipated/proposed funding scheme for the whole project period (million USD):

Source of Funding	Secured (million USD)	Requested (million USD)	Non-Secured (million USD)
(1) Equity of project owner	0.00	0.59	0.59
(2) National Environmental Fund	0.00	1.44	1.44
(3) Water Management Fund	0.00	0.59	0.59
(4) Public loan – Central budget	0.00	0.00	0.00
(5) Public loan – Regional budget	0.00	0.00	0.00
(6) Public loan – Municipal budget	0.00	0.00	0.00
(7) Public grant - Central budget	0.00	0.00	0.00
(8) Public grant - Regional budget	0.00	0.00	0.00
(9) Public grant - Municipal budget	0.00	0.00	0.00
(10) International loan	0.00	2.93	2.93
(11) International grant	0.00	0.30	0.30
(12) Commercial bank loan	0.00	0.00	0.00
(13) Other sources	0.00	0.00	0.00
TOTAL FUNDS/REQUIREMENTS:	0.00	5.85	5.85

Project 9

Borsodchem Company Salty Water Reduction Programme

Date of first setting up: September, 1998

Date of latest upgrade:

Project Title: Salty technological water concentration and christalization unit development for salt reuse in the frame of the salty water reduction program

Responsible/Legal Body

Authority/Company:

Name:	Borsodchem Company
Address:	3702 Kazincbarcika, Bólyai square
Telephone:	36 48 310 211
Fax:	36 48 313 654
E-mail:	torokjudit@borsodchem.zene.hu

Project target: Decrease the amount of salty wastewater leaving the Company

Investment Costs: Planned: 600.00 million HUF (2.93 million USD)

Status of the Project: Feasibility Study and offers for procurement are available

Language of Project Documents:

Hungarian

1. Project title: Salty technological water concentration and christalization unit development for salt reuse in the frame of the salty water reduction program

2. Investor Details

2.1. Authority/Company

Name: Borsodchem Company
Address: 3702 Kazincbarcika, Bólyai square
Telephone: 36 48 310 211
Fax: 36 48 313 654
E-mail: torokjudit@borsodchem.zene.hu

2.2. Contact Persons

Fekete Nagyné Török Judit senior environmental counselor
Telephone: 06 48 310 211

2.3. Advisor, Consultant

The Winner Company of the offer.

The company has its investment management capacity.

2.4. Legal/Financial Status

One of the biggest chemical company in Hungary.

Details on financial status can be found in the financial chapters.

2.5. Authority/Company Profile

Chemical Company with big PVC product profiles.

2.6. Planning/Implementing Extent/Capacity of the Investor

Investment management with 50 persons.

2.7. Institutions/Enterprises beside the Investor

North Hungarian Water Directorate

North Hungarian Environmental Inspectorate

Local Governments in the neighboring settlements

3. Project Description

3.1. A Project Outline

Typical salt concentration technology, preliminary concentrator, main concentrator christalizer, waste heat utilization, thermocompressor.

3.2. Primary Needs for the Project

There are different technological units where salty water is produced as waste material. The possibility for reuse is limited now due to their contamination with other materials.

The salty water causes unacceptable high pollution load to the recipient Sajó River. Downstream there are water uses for irrigation based on the Tisza Kisköre reservoir near to the Sajó inlet.

The needed desalination capacity is 20 t/h

3.3. Status of the Project Preparation

Offers are available.

3.4. Technology Proposed

Evaporation, christalization.

Requirement for purity: the christalized material should be good enough for electrolysis.

3.5. Ownership of the Project Site

The Company owns the site.

3.6. Specific Project Items

The project should be implemented by the year of 2001, according to the action program of the Company adopted by the Environmental Inspectorate.

4. Project Effects and Interactions

4.1. Public's Expression of Interest

The inhabitants are aware of the problem. They basically agree. The company organized environmental open day. They made acquainted the attendees with the project. There was no objection against it.

4.2. Environmental Impact Assessment

The project is not obliged for EIA preparation.

There was prepared an EIA in connection with other developments in the Company.

The desalination project was discussed there and adopted inclusive in the other decisions.

4.3. Sensitivity of Locality/Receptor

The recipient Sajó River has improved considerably since the '90-ties. The strictening of the in stream water quality objectives is very likely to protect the existing good conditions.

The Sajó reaches the Tisza River immediately upstream to the Tisza Lake, which is a popular recreation resort with international interest. The Tisza Lake is used for irrigation also. The existing practice when the salty water is stored and later led down on Sajó can be tolerated temporarily only.

4.4. Primary Effects of the Project

The existing practice explained in point 4.3. can be stopped.

Locally the salt content of the recipient will be decreased.

Regionally the Tisza Lake will be protected from salt contamination.

Internationally the salt pollution load of the Tisza and Danube Rivers will be decreased.

5. Economic Project Justification

5.1. Economic Project Benefits

- *Saved investment cost (compared to without project case);*

  Total investment cost estimate for the projects:

  Planned: 600.00 million HUF (2.93 million USD)

- *Employment/income effects:*

- during construction period (14 months):

  Employment effect:

  for the construction period:

  30 x 14 man/month = 420 man/month

  Income effect:

  for the construction period:

  33.6 million HUF 0.16 million USD

- during operation period:

  Employment effect annually:

  6 x 12 man/month = 72 man/month

  Income effect annually:

  8.64 million HUF 0.04 million USD

5.2. Economic Internal Rate of Return of the Project (EIRR):

Not calculated

6. Financial Viability

6.1. Estimated Investment Cost

- Total investment cost: 600.00 million HUF (2.93 million USD)
- Allocation of capital cost for the project period of 14 months:
  - planning and supervision cost is equally allocated during the construction period.
  - machinery and construction cost - 50 % deposit needed at the beginning of construction.

Name	Million HUF	Million USD
Land	0.00/0.00	0.00/0.00
*Construction and machinery		
- for 14 months	540.00	2.63
- beginning of 1st year	270.00	1.32
** 10% : 90 %*		
Planning and Supervision		
- for 14 months	60.00	0.29
TOTAL COST		
- for 14 months	**600.00**	**2.93**
- beginning of 1st year	**270.00**	**1.32**

- Year of cost estimate: 1998
- Nature of cost estimate: Preliminary, before evaluating the offers.

6.2. Estimated Operational Cost

- Expected annual (operational) recurrent cost (in real terms):

  330.00 million HUF 1.61 million USD

- Repair and replacement cost:

  20.00 million HUF 0.10 million USD

- Total operational cost:

  350.00 million HUF 1.71 million USD

- Year of estimate: 1998
- Nature of cost estimate: Draft, preliminary

6.3. Estimate of Revenues

- Expected annual revenues (in real terms):

  250.00 million HUF 1.22 million USD

- Year of estimate: 1998
- Nature of revenue estimate: Draft, preliminary

6.4. Financial Internal Rate of Return of the Project (FIRR) :

Not calculated

6.5. Anticipated/proposed funding scheme for the whole project period (million HUF):

Source of Funding	Secured (million HUF)	Requested (million HUF)	Non-Secured (million HUF)
(1) Equity of project owner	0.00	150.00	150.00
(2) National Environmental Fund	0.00	90.00	90.00
(3) Water Management Fund	0.00	60.00	60.00
(4) Public loan – Central budget	0.00	0.00	0.00
(5) Public loan – Regional budget	0.00	0.00	0.00
(6) Public loan - Municipal budget	0.00	0.00	0.00
(7) Public grant - Central budget	0.00	0.00	0.00
(8) Public grant - Regional budget	0.00	0.00	0.00
(9) Public grant - Municipal budget	0.00	0.00	0.00
(10) International loan	0.00	300.00	300.00
(11) International grant	0.00	0.00	0.00
(12) Commercial bank loan	0.00	0.00	0.00
(13) Other sources	0.00	0.00	0.00
TOTAL FUNDS/REQUIREMENTS:	0.00	600.00	600.00

Anticipated/proposed funding scheme for the whole project period (million USD):

Source of Funding	Secured (million USD)	Requested (million USD)	Non-Secured (million USD)
(1) Equity of project owner	0.00	0.73	0.73
(2) National Environmental Fund	0.00	0.44	0.44
(3) Water Management Fund	0.00	0.29	0.29
(4) Public loan - Central budget	0.00	0.00	0.00
(5) Public loan - Regional budget	0.00	0.00	0.00
(6) Public loan - Municipal budget	0.00	0.00	0.00
(7) Public grant - Central budget	0.00	0.00	0.00
(8) Public grant - Regional budget	0.00	0.00	0.00
(9) Public grant - Municipal budget	0.00	0.00	0.00
(10) International loan	0.00	1.47	1.47
(11) International grant	0.00	0.00	0.00
(12) Commercial bank loan	0.00	0.00	0.00
(13) Other sources	0.00	0.00	0.00
TOTAL FUNDS/REQUIREMENTS:	0.00	2.93	2.93

Project 10

Danube-Drava Region Wetland Rehabiliation Programme

Date of first setting up: 11. 09. 1998

Date of latest upgrade:

Project Title: Rehabilitation and management of the water related ecosystems in the Danube-Drava Region

Responsible/Legal Body

Authority

Name:	Danube-Morava National Park Directorate, Hungary
	Kopácsi Meadov National Park Directorate, Croatia
Address:	7625 Pécs Tettye square 9.
Telephone:	36 72 213 263
Fax:	36 72 210 747
E-mail:	deduti@ktm.x400gw.itb.hu

Project target: Joint transboundary water management and nature conservation program preparation and implementation in the district area of the Danube-Drava Nature Park Directorate (Hungary) and the Kopácsi-meadow Nature Park (Croatia), reduction of the pollution load form the Kapos, Sio, Nádor Rivers,

- protection and rehabilitation of wetlands and water related ecosystems,
- joint protection for rare species,
- forest reconstruction.

Investment Costs: 1,080 MILLION HUF (5.27 Million USD)

Status of the Project: Project, emerging

Language of Project Documents:

Hungarian, partly English (PHARE report)

1. Project Title: Rehabilitation and management of the wetlands and water related ecosystems in the Danube-Drava Region

2. Investor Details

2.1. Authority/Company

Name: Danube-Drava National Park Directorate
Address: 7625 Pécs Tettye square 9.
Telephone: 36 72 213 263
Fax: 36 72 210 747
E-mail: DEDUTI@KTM.X4006W.ITB.HU

2.2. Contact Persons

Ildiko IVÁNYI Dr, director
Szabolcs ZÁVODSZKY, head of division
Krisztina BÖSZÖRMÉNYI, advisor on international relations

2.3. Advisor, Consultant

Klara TÓTH +36 30 9493 397
Sandor KISGYÖRGY +36 30 9513 487

2.4. Legal/Financial Status

Budget Institution with 50 persons employees.

2.5. Authority/Company Profile

Regional Nature Conservation Authority
Management of National Protected Areas

2.6. Planning/Implementing Extent/Capacity of the Investor

Design, project preparation: 3 persons.

2.7. Institutions/Enterprises beside the Investor

South-Transdanubian Water Directorate

South-Transdanubian Environmental Inspectorate

Local Governments

State Forest Service

Forest and Timber Company at Gemenc

3. Project Description

3.1. A Project Outline

The goal of the project is to prepare and implement a joint transboundary water management and nature conservation program on the district area of the Danube-Drava Nature Park Directorate (Hungary) and the Kopácsi – meadow Nature Park (Croatia). These protected areas belong to one natural unit, consisting of similar areas mostly connected to water related ecosystems.

The major tasks are:

- reduction of the pollution load from the Dapos, Sio, Nádor Rivers reaching Danube protection and rehabilitation of wetlands and water related ecosystems,
- joint protection for rare species,
- forest reconstruction.

The planned area of the program can be seen on the map attached.

Today they belong to the National Natural Park Areas

The project consists of two parts: wetlands rehabilitation (referred as 1.1 later, and biodiversity restoration: 1.2).

3.2. Primary Needs for the Project

The Charpatian Basin was characterized by the high diversity of water related ecosystems before the regulation of the big rivers in the last century. The temporarily flood areas were used traditionally by inhabitants living there. A specific nature close lifestyle was developed when they diverted the waters into small ditches and deeper areas. The water was retained there and an organic management system was used to maintain the fertility of meadows, grasslands and forests. This organic area management was very important for maintaining the fish fauna in Danube itself.

The river regulations thoroughly changed the balance of these ecosystems. The frequency and length of floods has been reduced, the small channels have been filled up partly. This tendency has speeded up owing to the continuos deepening of the riverbed due to the upstream dam systems.

The Kapos and Séd-Nádor Rivers are tributaries of Danube at Gemenc area. The pollution load carried by them is high owing to the densely polluted watersheds and bid industrial towns concentrated there. The existing sluices allow the artificial flooding of big parts of the used to be flooded area. The water quality could be improved and the pollution load reduced via the implementation of the proposed program.

The Gemenc floodplain forest is the biggest in the Europe of this type. The ignorance of nature conservation interests has destroyed these ecosystems. Their restoration has an international interest according to the results of the PHARE study conducted in 1992.

3.3. Status of the Project Preparation

A PHARE project examined this issue dealing with the Gemenc area.

The nature protection management plan is being developed now.

3.4. Technology Proposed

Conventional water engineering and forest restoration technologies will be used.

3.5. Ownership of the Project Site

State:	93%
Co-operative:	5%
Private:	2%

3.6. Specific Project Items

The black stork population (Ciconia nigra) nesting here with highest number on the World and the white tailed eagle usual appearance has outstanding importance. The role of the deps is also significant as fish offspring breeding and amphibian propagation area.

4. Project Effects and Interactions

4.1. Public's Expression of Interest

The specific survey on public interest regarding the project has not been conducted.

Preliminary estimation: there is not likely any counter interest towards the program.

4.2. Environmental Impact Assessment

Needed.

Some parts are available in the PHARE project and the management plan.

4.3. Sensitivity of Locality/Receptor

The natural conservation areas are very sensitive for all disturbances possibly connected with the implementation of the program. All activities can be conducted in strict accordance with the prescriptions of the Natural Conservation Authority.

The sensitivity of Danube as a recipient is relatively low in this specific area due to its high dilution capacity. The contribution of the Kapos and Séd-Nádor to the total pollution load could not be ignored regarding its specific character.

4.4. Primary Effects of the Project

They can be found inside the dam system of Danube, so it is flooded once-twice a year. The wet areas, deeps should be connected again to restore the traditional floodplain management system and the related ecosystems by ensuring the regular flooding, as a basic element of the traditional land uses. The change of the existing income oriented forest management into nature protection based forestry can restore the original forest structure and landscape. The proposed ecosystem rehabilitation has an international importance, as here can be found the biggest floodplain forest in Europe.

5. Economic Project Justification

5.1. Economic Project Benefits

- *Saved investment cost (compared to without project case);*
  Total investment cost estimate for subprojects 1.1 and 1.2: 1.080 million HUF (5.27 million USD)
- *Employment/income effects:*
  - during construction period:
    subproject 1.1: 36 man/month for preparation, feasibility study, planning + 360 man/month for implementation;
    subproject 1.2: 12 man/month for preparation, feasibility study, planning + 72 man/month for implementation;
  - during operation period:
    for the whole project 72-120 man/month annually.

5.2. Economic Internal Rate of Return of the Project (EIRR):

Not calculated

6. Financial Viability

6.1. Estimated Investment Cost

- Total investment cost: 1.080 million HUF (5.27 million USD).
- Allocation of capital cost for the project period of 5 years, equally allocated on annual basis:

Name	Million HUF	Million USD
Land	0.00/0.00	0.00/0.00
Construction and Machinery		
- for 5 years	972.00	4.74
- p.a.	196.40	0.95
Planning and Supervision		
- for 5 years	108.00	0.53
- p.a.	19.60	0.10
TOTAL COST		
- for 5 years	**1.080.00**	**5.27**
- p.a.	**216.00**	**1.05**

- Year of cost estimate: 1998
- Nature of cost estimate: Draft, preliminary

6.2. Estimated Operational Cost

- Expected annual (operational) recurrent cost (in real terms):

  4.32 million HUF 0.02 million USD

  Note: approximately 2% of the total investment cost.
- Repair and replacement cost:

  2.16 million HUF 0.01 million USD
- Total operational cost:

  6.48 million HUF 0.03 million USD
- Year of estimate: 1998
- Nature of cost estimate: Draft, preliminary

6.3. Estimate of Revenues

- Expected annual revenues (in real terms):

  5-8 million HUF 0.02-0.4 million USD
- Year of estimate: 1998
- Nature of revenue estimate: Draft, preliminary

6.4. Financial Internal Rate of Return of the Project (FIRR):

Not calculated

6.5. Anticipated/proposed funding scheme for the whole project period (million HUF):

Source of Funding	Secured (million HUF)	Requested (million HUF)	Non-Secured (million HUF)
(1) Equity of project owner	0.00	0.00	0.00
(2) National Environmental Fund	0.00	324.00	324.00
(3) Water Management Fund	0.00	108.00	108.00
(4) Public loan - Central budget	0.00	0.00	0.00
(5) Public loan - Regional budget	0.00	0.00	0.00
(6) Public loan - Municipal budget	0.00	0.00	0.00
(7) Public grant - Central budget	0.00	21.60	21.60
(8) Public grant - Regional budget	0.00	0.00	0.00
(9) Public grant - Municipal budget	0.00	0.00	0.00
(10) International loan	0.00	86.40	86.40
(11) International grant	0.00	540.00	540.00
(12) Commercial bank loan	0.00	0.00	0.00
(13) Other sources	0.00	0.00	0.00
TOTAL FUNDS/REQUIREMENTS:	0.00	1.080.00	1.080.00

Anticipated/proposed funding scheme for the whole project period (million USD):

Source of Funding	Secured (million USD)	Requested (million USD)	Non-Secured (million USD)
(1) Equity of project owner	0.00	0.00	0.00
(2) National Environmental Fund	0.00	1.58	1.58
(3) Water Management Fund	0.00	0.52	0.52
(4) Public loan - Central budget	0.00	0.00	0.00
(5) Public loan - Regional budget	0.00	0.00	0.00
(6) Public loan - Municipal budget	0.00	0.00	0.00
(7) Public grant - Central budget	0.00	0.10	0.10
(8) Public grant - Regional budget	0.00	0.00	0.00
(9) Public grant - Municipal budget	0.00	0.00	0.00
(10) International loan	0.00	0.42	0.42
(11) International grant	0.00	2.65	2.65
(12) Commercial bank loan	0.00	0.00	0.00
(13) Other sources	0.00	0.00	0.00
TOTAL FUNDS/REQUIREMENTS:	0.00	5.27	5.27