DANUBE POLLUTION REDUCTION PROGRAMME

NATIONAL REVIEWS 1998 CROATIA

PROJECT FILES



State Water Directorate State Directorate for the Protection of Nature and Environment

in cooperation with the



Programme Coordination Unit UNDP/GEF Assistance



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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 where 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 **Croatian National Review** was prepared under the supervision of the Head of Delegation to the Danube River Protection Commission, **Mr. Zeljko Ostojic**, with the support of the Country Programme Coordinator, **Mr. Predrag Sibalic**. The authors of the respective parts of the report are:

- Part A : Social and Economic Analysis: Mr. Ognjen Caldarovic

Part B : Financing Mechanisms: Ms. Dubravka Mokos
 Part C : Water Quality: Ms. Marija Marijanovic

- Part D: Water Environmental Engineering: Mr. Silvio Brezak

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.

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State Directorate for the Protection of Nature and Environment

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Project 1

The Sewerage and Wastewater Treatment of City of Slavonski Brod and Wider Area

Date of first setting up: Date of latest upgrade:

Project Title The sewerage and wastewater treatment of city of Slavonski Brod

and wider area

Responsible/Legal Body

Authority/Company "Vodovod" d.o.o. Slavonski Brod

Name Stipo Grgić, B.Sc.

Address Nikole Zrinskog 25

Telephone +385 35 232499 **Fax** +385 35 445 960

e-mail

Project Target The upgrading of sewerage system up to the future wastewater

treatment plant in order to achieve appropriate water quality in the

recipients (river Glogovnica, Mrsunja and Sava river)

Investment Costs 50 000 000 US\$

Status of Project

Ongoing/Planned Project,

Emerging Concept

Planned project

Language of Project

Documents

Croatian

1. Project Title

The sewerage and wastewater treatment of city of Slavonski Brod and wider area

2. Investor Details

2.1. Authority/Company

Name: "Vodovod" d.o.o. Slavonski Brod

Address: Nikole Zrinskog 25
Telephone: +385 35 232499
Fax: +385 35 445960

E-mail:

2.2. Contact Persons

Zvonimir Kos, B.Sc.

2.3. Advisor/Consultant

Dippold & Gerold; "Hidroprojekt 91" Zagreb, Croatian Waters;

Faculty of Civil Engineering Zagreb

2.4. Legal/Financial Status

Trade company with limited responsibilities

2.5. Authority/Company Profile

Water supply, wastewater disposal, activities on solid waste disposal;

Number of persons employed: 207;

Annual budget 62 643 288,95 kuna (cca 9 760 000 US\$)

2.6. Planning/Implementing Extent/Capacity of the Investor

The company does not have planning (design) capacities, whereas it has implementing capacities for building of wastewater treatment plant.

2.7. Institutions/Enterprises beside the Investor

Croatian Waters; City council of Slavonski brod;

"Hidroprojekt 91"; IGH - Institute of Civil Engineering of Croatia - Zagreb

3. Project Description

3.1. Project Outline

For the area of Slavonski Brod the mixed sewerage system exists whereas for surroundings places the separate sewerage system is build. The works on sewerage system are finished to 75 percent. Nowadays, the discharge of wastewater takes place on several locations in different recipients. The amount of domestic wastewater is estimated at 5 200 m³/day, while the amount of industrial wastewater is estimated at 3 700 m³/day. The total annual discharge of wastewaters is cca. 3 250 000 m³. It is a plan to build the wastewater treatment plant with capacity of 80 000 p.e. (mechanical-biological treatment with conditioning of the sludge)

3.2. Primary Needs for the Project

The aim of the project is to reduce the pollution of rivers Sava, Glogovica and Mrsunja. Other benefits are the improvement of health conditions in the area and in environment itself. If the project will be implemented the standards for water quality will be met and these rivers could be used for recreation and economical activities.

3.3. Status of Project Preparation

The main design for the sewerage system is finished, and the works on building of main collector and pumping stations are in progress.

For wastewater treatment plant only planning documentation exists.

All papers are in Croatian language.

3.4. Technology Proposed

Mechanical-biological treatment with conditioning of the sludge

3.5. Ownership of Project Site

The city council of Slavonski Brod

3.6. Specific Project Items

4. Project Effects and Interactions

4.1. Public's Expression of Interest

There is no description of public interest and no results of social acceptance assessment.

4.2. Environmental Impact Assessment

There is no the environmental impact assessment.

4.3. Sensitivity of Locality/Receptor

The recipient for the wastewater is river Sava, which is classified into second category of water quality.

4.4. Primary Effects of Project

The project could be characterized as a project of international level of importance. The main recipient is Sava River, which is the border between Croatia and Bosnia and Herzegovina. Therefore, the project has significant transboundary effect and Slavonski Brod is situated at the border between those two countries. The expected reduction of BOD will be between 70 and 90 %, whereas the expected reduction of COD will be at least 70 percent. Nowadays the load of BOD is 251 tones/year and the load of COD is 804 tones/year. The implementation of the project will reduce the load of BOD up to 50 tones/year and COD up to 201 tones/year.

5. Economic Project Justification

5.1. Economic Project Benefits

The project will increase employment during the construction period as well as during operation period.

5.2. Economic Internal Rate of Return (EIRR)

6. Financial Viability

6.1. Estimated Investment Cost

The investment costs are preliminary estimated at 50 000 000 US\$.

6.2. Estimated Operational Cost

The operational costs are preliminary estimated as follows:

- for personnel 50 000 US\$
- for operational and maintenance costs 190 000 US\$

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

FIRR has not been calculated

6.5. Anticipated/Proposed Funding Scheme

Courses of funding	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan - central budget			
(5) Public loan - regional budget			
(6) Public loan - municipal budget			
(7) Public grant - central budget			
(8) Public grant - regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds /requirements			

Project 2

The Sewerage and Wastewater Treatment of City of Županja

Date of first setting up: Date of latest upgrade:

Project Title The sewerage and wastewater treatment of city of Županja

Responsible/Legal Body

Authority/Company "Komunalac" d.o.o. Županja

Name Mr. Blaž Maričić.

Address Strossmayerova 14

Telephone +385 32 831628 **Fax** +385 35 833053

e-mail

Project Target To protect the river Sava and to reduce the water pollution in order

to meet appropriate class for water quality of the river

Investment Costs 11 000 000 US\$

Status of Project

Ongoing/Planned Project,

Emerging Concept

planned project

Language of Project

Documents

Croatian

1. Project Title

The sewerage and wastewater treatment of city of Županja

2. Investor Details

2.1. Authority/Company

Name: "Komunalac" d.o.o. Županja

Address: Strossmayerova 14
Telephone: +385 32 831628
Fax: +385 32 833053

E-mail:

2.2. Contact Persons

Mr. Blaž Maričić

2.3. Advisor/Consultant

"Hidroprojekt EKO" Zagreb; Croatian Waters;

Faculty of Civil Engineering Zagreb; IGH- Institute of Civil Engineering Zagreb

2.4. Legal/Financial Status

Trade company with limited responsibilities

2.5. Authority/Company Profile

Water supply, wastewater disposal, activities on solid waste disposal;

Number of persons employed: 69

Annual budget 4 700 000 kuna (cca 732 000 US\$)

2.6. Planning/Implementing Extent/Capacity of the Investor

The company does not have planning (design) capacities, nor implementing capacities.

2.7. Institutions/Enterprises beside the Investor

Croatian Waters; City Council of Županja;

"Hidroprojekt EKO" Zagreb;

3. Project Description

3.1. Project Outline

For the area of Županja the mixed sewerage system exists whereas for surroundings places the separate sewerage system is build. It is necessary to build the connection of the sewerage system to the future wastewater treatment plant and some pumping stations. According to the present situation, a plan is to build the wastewater treatment plant with mechanical-biological treatment with capacity of 60 000 p.e.

3.2. Primary Needs for the Project

In order to improve the water quality of river Sava and to meet the prescribed category of the river it is necessary to build the wastewater treatment plant for city of Županja.

3.3. Status of Project Preparation

The main design documentation for the connection line between existing sewerage system and future wastewater treatment plant is in preparation, while the documentation for wastewater treatment plant still has to be prepared.

All documents are in Croatian language.

3.4. Technology Proposed

Standard technology - mechanical-biological treatment with conditioning of the sludge

3.5. Ownership of Project Site

The city council of Županja

3.6. Specific Project Items

4. Project Effects and Interactions

4.1. Public's Expression of Interest

There is no description of public interest and no results of social acceptance assessment.

4.2. Environmental Impact Assessment

There is no the environmental impact assessment.

4.3. Sensitivity of Locality/Receptor

The recipient for the wastewater is river Sava, which is classified into second category of water quality. The future location of the wastewater treatment plant is outside the inhabited area.

4.4. Primary Effects of Project

The project could be characterized as a project of international level of importance. The city of Županja is situated close to the border with Bosnia and Herzegovina and therefore the significant transboundary effect exist concerning the implementation of the project. The reduction of BOD will be 70-90 percent and the reduction of COD will be at least 70 percent if the wastewater treatment plant exists.

5. Economic Project Justification

5.1. Economic Project Benefits

Higher employment rate will be achieved during the construction period as well as during the operation period.

5.2. Economic Internal Rate of Return (EIRR)

EIRR has not been calculated.

6. Financial Viability

6.1. Estimated Investment Cost

The investment costs are preliminary estimated at 11 000 000 US\$.

6.2. Estimated Operational Cost

The total operational costs are preliminary estimated at 135 000 US\$ per year.

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

FiRR has not been calculated.

6.5. Anticipated/Proposed Funding Scheme

Courses of funding	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan - central budget			
(5) Public loan - regional budget			
(6) Public loan - municipal budget			
(7) Public grant - central budget			
(8) Public grant - regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds /requirements			

Project 3

The Sewerage and Wastewater Treatment of City of Kutina and Surrounding Settlements

Date of first setting up: Date of latest upgrade:

Project Title The sewerage and wastewater treatment of city of Kutina and

surrounding settlements

Responsible/Legal Body

Authority/Company "Moslavina" d.o.o. Kutina

Name Mr. Damir Pintarić

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Telephone +385 44 621515

Fax +385 44 621523

e-mail

Project Target To improve the water quality of river Kutinica and to reduce the

pollution in connection canal Ilova – Kutinica.

Investment Costs 12 000 000 US\$

Status of Project

Ongoing/Planned Project,

Emerging Concept

planned project

Language of Project

Documents

Croatian

1. Project Title

The sewerage and wastewater treatment of city of Kutina

2. Investor Details

2.1. Authority/Company

Name: "Moslavina" d.o.o. Kutina

Address: Zagrebačka 1
Telephone: +385 44 621515
Fax: +385 44 621523

E-mail:

2.2. Contact Persons

Mr. Ivan Crnković, B. Sc

2.3. Advisor/Consultant

Croatian Waters;

Faculty of Chemical Engineering and Technology;

IGH- Institute of Civil Engineering Zagreb.

2.4. Legal/Financial Status

Trade company with limited responsibilities

2.5. Authority/Company Profile

Water supply, wastewater disposal, activities on solid waste disposal;

Number of persons employed: 105

Annual budget 41 600 000 kuna (cca 6 480 000 US\$)

2.6. Planning/Implementing Extent/Capacity of the Investor

The company has neither planning (design) capacities, nor implementing capacities.

2.7. Institutions/Enterprises beside the Investor

Croatian Waters; City Council of Kutina;

Faculty of Chemical Engineering and Technology;

IGH- Institute of Civil Engineering Zagreb

3. Project Description

3.1. Project Outline

For the area of Kutina the mixed sewerage system exists whereas for surrounding settlements the separate sewerage system is build. There are only 40 percent of sewerage network build and about 30 kilometers of sewerage network have to be constructed together with 7 pumping stations. The first phase of the wastewater treatment plant is finished (mechanical treatment) with capacity of 20 000 p.e. The second phase will include the construction of biological part of the treatment plant with capacity of 30 000 p.e. Furthermore, the nitrification and denitrification of nitrogen compounds is also recommended according to the project documentation.

3.2. Primary Needs for the Project

The main aim of the project is to reduce the pollution in river Kutinica and in connection canal Ilova-Kutinica in order to meet prescribed category of these rivers.

3.3. Status of Project Preparation

The main studies and application studies have to be prepared both for the sewerage system and the wastewater treatment plant.

All finished documents are in Croatian language.

3.4. Technology Proposed

The mechanical-biological treatment with separated nitrification and denitrification processes. The treatment of the sludge is supposed to be with primary conditioning, anaerobic stabilization together with the use of biogas and secondary conditioning of sludge. The mechanical dehidratization of sludge is also predicted.

3.5. Ownership of Project Site

"Moslavina" d.o.o. Kutina

3.6. Specific Project Items

4. Project Effects and Interactions

4.1. Public's Expression of Interest

The public opinion for the project is positive from the public discussion about the implementation of the project.

4.2. Environmental Impact Assessment

The environmental impact assessment is finished.

4.3. Sensitivity of Locality/Receptor

The recipient for the wastewater is river Kutinica that is classified into second category of water quality.

4.4. Primary Effects of Project

The project could be characterized as a project of local level of importance. The building of the biological part of the treatment plant will further reduce the load of BOD up to 70-90 % and the load of COD up to 70 percent will be reduced as well.

5. Economic Project Justification

5.1. Economic Project Benefits

As one of the benefits, higher employment rate will be achieved during the construction period as well as during the operation period.

5.2. Economic Internal Rate of Return (EIRR)

EIRR has not been calculated.

6. Financial Viability

6.1. Estimated Investment Cost

The investment costs are preliminary estimated at 12 000 000 US\$.

6.2. Estimated Operational Cost

The operational costs are preliminary estimated as follows:

- for personnel 50 000 US\$ - for maintenance 80 000 US\$

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

FIRR has not been calculated.

6.5. Anticipated/Proposed Funding Scheme

Courses of funding	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan - central budget			
(5) Public loan - regional budget			
(6) Public loan - municipal budget			
(7) Public grant - central budget			
(8) Public grant - regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds /requirements			

Project 4

The Wastewater Treatment Plant of City of Bjelovar

Date of first setting up: Date of latest upgrade:

Project Title The wastewater treatment plant of city of Bjelovar

Responsible/Legal Body

Authority/Company "Komunalac" d.o.o. Bjelovar

Name Mr. Slavko Husjak, B.Sc.

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e-mail

Project Target The improvement of water quality of river Bjelovarska and the

improvement of health situation in the area

Investment Costs 6 660 000 US\$

Status of Project

Ongoing/Planned Project, Emerging Concept Ongoing project

Language of Project

Documents

Croatian

1. Project Title

The wastewater treatment plant of city of Bjelovar

2. Investor Details

2.1. Authority/Company

Name: "Komunalac" d.o.o. Bjelovar Address: Šetalište Dr. I. Lebovića 35a

Telephone: +385 43 244457 Fax: +385 43 241343

E-mail:

2.2. Contact Persons

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2.3. Advisor/Consultant

Croatian Waters; "Hidroexpert" Zagreb; Faculty of Chemical Engineering and Technology Zagreb, Mr. Laszlo Sipos, PhD.;

2.4. Legal/Financial Status

Trade company with limited responsibilities

2.5. Authority/Company Profile

Water supply, wastewater disposal, activities on solid waste disposal;

Number of persons employed: 150;

Annual budget in 1997: 19 770 624.00 kuna (cca 3 080 000 US\$)

2.6. Planning/Implementing Extent/Capacity of the Investor

The company has neither planning (design) capacities, nor implementing capacities.

2.7. Institutions/Enterprises beside the Investor

Croatian Waters; Faculty of Chemical Engineering and Technology;

"Hidroexpert" Zagreb; IGH - Institute of Civil Engineering of Croatia - Zagreb

3. Project Description

3.1. Project Outline

The wastewater treatment plant of city of Bjelovar is already constructed in its first phase. It means that the mechanical-biological treatment is finished and the total capacity of the treatment plant nowadays is 100000 p.e., but the designed capacity is 220 000 p.e. The treatment plant is often overloaded due to the lack of industrial pre-treatment. In order to achieve the earlier defined standards for the water quality of the recipient, it is necessary to finish the second phase of biological treatment which include also the technology for sludge conditioning and the facilities for reception and disposal of precipitation.

3.2. Primary Needs for the Project

The aim of the project is to reduce the pollution of river Bjelovarska. Other benefits are the improvement of health conditions in the inhabited area of city of Bjelovar.

3.3. Status of Project Preparation

The new feasibility study for the wastewater treatment plant is finished, and the research works on the functionality of existing treatment plant are concluded. The preparation of the main design is in progress.

All papers are in Croatian language.

3.4. Technology Proposed

Mechanical-biological (two stages) treatment of wastewater. First stage of biological treatment includes active sludge approach, whereas second stage includes nitrification and denitrification. Moreover, the chemical treatment of the phosphorus is also proposed.

3.5. Ownership of Project Site

"Komunalac" d.o.o. Bjelovar

3.6. Specific Project Items

4. Project Effects and Interactions

4.1. Public's Expression of Interest

There is positive public opinion present about the project.

4.2. Environmental Impact Assessment

The environmental impact assessment was finished during the preparation of the first phase of the project.

4.3. Sensitivity of Locality/Receptor

The recipient for the wastewater is river Bjelovarska that is classified into second category of water quality. The Bjelovarska River characterizes the low flow in comparison to the load of wastewater.

4.4. Primary Effects of Project

The project could be characterized as a project of regional and national level of importance. The project will reduce the load of BOD and COD up to 186 and 418 tones per year, respectively. The amount of BOD without the measures is estimated at 930 tones per year and the amount of COD is estimated at 1673 tones/year also if the measures do not exist.

5. Economic Project Justification

5.1. Economic Project Benefits

5.2. Economic Internal Rate of Return (EIRR)

EIRR has not been calculated.

6. Financial Viability

6.1. Estimated Investment Cost

The investment costs are preliminary estimated at 6 660 000 US\$.

6.2. Estimated Operational Cost

The total operational costs are preliminary estimated at 420 000 US\$.

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

FIRR has not been calculated.

6.5. Anticipated/Proposed Funding Scheme

Sources of funding	Secured	Requested	Non - secured
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan - central budget			
(5) Public loan - regional budget			
(6) Public loan - municipal budget			
(7) Public grant - central budget			
(8) Public grant - regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements			

Project 5

The Sewerage and Wastewater Treatment of City of Vinkovci

Date of first setting up: Date of latest upgrade:

Project Title The sewerage and wastewater treatment of city of Vinkovci

Responsible/Legal Body

Authority/Company "Vinkovački vodovod i kanalizacija" d.o.o. Vinkovci

Name Mr. Božo Galić, B.Sc.

Address Ružina 47a

Telephone +385 32 331888 **Fax** +385 32 332553

e-mail

Project Target To improve the water quality of river Bosut due to the use of its

water (irrigation) and other purposes.

Investment Costs 12 000 000 US\$

Status of Project

Ongoing/Planned Project, Emerging Concept Ongoing project

Language of Project

Documents

Croatian

1. Project Title

The sewerage and wastewater treatment of city of Vinkovci

2. Investor Details

2.1. Authority/Company

Name: "Vinkovački vodovod and kanalizacija" d.o.o. Vinkovci

Address: Ružina 47a

Telephone: +385 32 331888 Fax: +385 32 332553

2.2. Contact Persons

Mr. Božo Galić, B. Sc.

2.3. Advisor/Consultant

Croatian Waters:

Faculty of Chemical Engineering and Technology;

IGH- Institute of Civil Engineering Zagreb.

2.4. Legal/Financial Status

Trade company with limited responsibilities

2.5. Authority/Company Profile

Water supply, wastewater disposal, activities on solid waste disposal, gas and energy supply; Number of persons employed: 320

2.6. Planning/Implementing Extent/Capacity of the Investor

The company has no planning (design) capacities, while implementing capacities are present.

2.7. Institutions/Enterprises beside the Investor

Croatian Waters; Faculty of Civil Engineering Zagreb;

Faculty of Chemical Engineering and Technology;

IGH- Institute of Civil Engineering Zagreb

3. Project Description

3.1. Project Outline

There is unfinished mixed sewerage network, but the documentation exists. It is necessary to build the connection to the future site of the treatment plant, collector Vinkovačko N. Selo and to carry out the reconstruction of the collector "Barica". The wastewater treatment plant with mechanical-biological parts is designed with capacity of 70 000 p.e.

3.2. Primary Needs for the Project

The main aim of the project is to reduce the pollution in river Bosut that is supposed to be second category for water quality. The river Bosut is type of stillwater and the eutrophication takes place. Therefore the water from river Bosut can not be used for irrigation as well as for other purposes.

3.3. Status of Project Preparation

The construction works on collector are in progress, while the works on the building of the treatment plant are stopped in 1990 due to the war. For all works the main studies exist in Croatian language.

3.4. Technology Proposed

The mechanical-biological treatment with separated nitrification and denitrification processes. The treatment of the sludge is supposed to be with anaerobic stabilization and mechanical dehidratization of sludge together with composting.

3.5. Ownership of Project Site

"Vinkovački vodovod i kanalizacija" d.o.o. Vinkovci

3.6. Specific Project Items

4. Project Effects and Interactions

4.1. Public's Expression of Interest

The public opinion for the project is positive from the public discussion about the implementation of the project.

4.2. Environmental Impact Assessment

The environmental impact assessment is finished.

4.3. Sensitivity of Locality/Receptor

The recipient for the wastewater is river Bosut that is classified into second category of water quality.

4.4. Primary Effects of Project

The project could be characterized as a project of international level of importance. The city of Vinkovci is situated at cca. 40 kilometers upstream of the border with FRY, therefore the significant transboundary effect exists.

5. Economic Project Justification

5.1. Economic Project Benefits

The employment rate will be increased during the construction period, as well as during the operation period. Moreover, the use of water from river Bosut will allow other activities such as agriculture etc.

5.2. Economic Internal Rate of Return (EIRR)

6. Financial Viability

6.1. Estimated Investment Cost

The investment costs are estimated at 12 000 000 US\$. This amount (or part of it) is secured with the international loan given by World Bank.

6.2. Estimated Operational Cost

The total operational costs are estimated at 215 000 US\$.

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

6.5. Anticipated/Proposed Funding Scheme

Courses of funding	Secured	Requested	Non - secured
Sources of funding	US\$	US\$	US\$
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan - central budget			
(5) Public loan - regional budget			
(6) Public loan - municipal budget			
(7) Public grant - central budget			
(8) Public grant - regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements			

Project 6

The Wastewater Treatment Plant of City of Velika

Date of first setting up: Date of latest upgrade:

Project Title The wastewater treatment plant of city of Velika

Responsible/Legal Body

Authority/Company Municipality of Velika

Mr. Josip Perić Name

Bana Jelačića 74 **Address Telephone** +385 34 233033 Fax +385 34 233033

e-mail

Project Target The improvement of water quality of river Veličanka

Investment Costs 1 000 000 US\$

Status of Project

Ongoing/Planned Project, **Emerging Concept**

Ongoing project

Language of Project

Documents

Croatian

1. Project Title

The wastewater treatment plant of city of Velika

2. Investor Details

2.1. Authority/Company

Name: Municipality of Velika

Address: Bana Jelačića 74

Telephone: +385 34 233033

Fax: +385 34 233033

E-mail:

2.2. Contact Persons

Mr. Josip Perić

2.3. Advisor/Consultant

Croatian Waters; "Hidroprojekt-ING" Zagreb; TEH-Projekt-HIDRO, Rijeka

2.4. Legal/Financial Status

State institution

2.5. Authority/Company Profile

State institution

2.6. Planning/Implementing Extent/Capacity of the Investor

The institution has neither planning (design) capacities, nor implementing capacities.

2.7. Institutions/Enterprises beside the Investor

Croatian Waters; Faculty of Civil Engineering; "Hidroprojekt-ING" Zagreb; Kamen Ingrad Požega.

3. Project Description

3.1. Project Outline

For the city of Velika the separate sewerage network is designed and works are almost finished. For the wastewater treatment plant the mechanical-biological treatment is proposed with capacity of 3000 p.e. for the first phase and with capacity of 5 000 p.e. for the second phase of the project.

3.2. Primary Needs for the Project

The aim of the project is to reduce the pollution of river Veličanka, because this river has a low flow during the summer and winter (small capacity of recipient).

3.3. Status of Project Preparation

The works on construction of the wastewater treatment plant are temporary in progress.

3.4. Technology Proposed

Standard technology - mechanical-biological treatment of wastewater.

3.5. Ownership of Project Site

Municipality of Velika

3.6. Specific Project Items

4. Project Effects and Interactions

4.1. Public's Expression of Interest

There is a positive public opinion present about the project.

4.2. Environmental Impact Assessment

The environmental impact assessment is not carried out for the project.

4.3. Sensitivity of Locality /Receptor

The recipient for the wastewater is river Veličanka, which is classified into second category of water quality. The Veličanka River characterizes the low flow in comparison to the load of wastewater.

4.4. Primary Effects of Project

The project could be characterized as a project of regional and national level of importance.

5. Economic Project Justification

- **5.1.** Economic Project Benefits
- **5.2.** Economic Internal Rate of Return (EIRR)
- 6. Financial Viability
- **6.1.** Estimated Investment Cost
- **6.2.** Estimated Operational Cost
- **6.3.** Estimate of Revenues
- **6.4.** Financial Internal Rate of Return (FIRR)

6.5. Anticipated/Proposed Funding Scheme

Connect of funding	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan - central budget			
(5) Public loan - regional budget			
(6) Public loan – municipal budget			
(7) Public grant - central budget			
(8) Public grant - regional budget			
(9) Public grant – municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds /requirements			

Project 7

The Sewerage and Wastewater Treatment of Cities of Grubišno Polje and Mali Zdenci along with PPI "Zdenka" Veliki Zdenci

Date of first setting up: Date of latest upgrade:

Project Title The sewerage and wastewater treatment of cities of Grubišno Polje

and Mali Zdenci along with PPI "Zdenka" Veliki Zdenci

Responsible/Legal Body

Authority/Company The municipality of Grubišno Polje

Name Mr. Zlatko Bjondić, city major

Address Trg Bana Jelačića 1

Telephone +385 43 485036

Fax +385 43 485496

e-mail

Project Target To improve the water quality of rivers Šovarnica and Ilova.

Investment Costs 6 212 500 US\$

Status of Project

Ongoing/Planned Project,

Emerging Concept

Planned project

Language of Project

Documents

Croatian

1. Project Title

The sewerage and wastewater treatment of cities of Grubišno polje and Mali Zdenci along with PPI "Zdenka" Veliki Zdenci

2. Investor Details

2.1. Authority/Company

Name: Municipality of Grubišno Polje

Address: Trg Bana Jelačića 1

Telephone: +385 43 485036

Fax: +385 43 485496

E-mail:

2.2. Contact Persons

Mr. Zlatko Bjondić

2.3. Advisor/Consultant

Croatian Waters:

Faculty of Chemical Engineering and Technology;

"Hidroprojekt-Consult" Zagreb.

2.4. Legal/Financial Status

State institution

2.5. Authority/Company Profile

State institution

2.6. Planning/Implementing Extent/Capacity of the Investor

The institution has neither planning (design) capacities, nor implementing capacities.

2.7. Institutions/Enterprises beside the Investor

Croatian Waters; "Hidroprojekt-Consult" Zagreb;

Faculty of Chemical Engineering and Technology;

IGH- Institute of Civil Engineering Zagreb; "Vodoprivreda d.o.o." Daruvar

3. Project Description

3.1. Project Outline

For the settlements of Grubišno Polje, Mali Zdenci and Veliki Zdenci, and Orlovac along with the industry PPI "Zdenka" Veliki Zdenci both common sewerage system and the wastewater treatment plant are proposed. Nowadays, the sewerage network exists only in the central part of Grubišno Polje. At the location of the industry PPI "Zdenka" Veliki Zdenci the treatment plant exists only for the first phase of the mechanical-biological treatment. The treatment plant is often not in function and therefore the documentation for the reconstruction is finished and the approach for the wastewater treatment is proposed (two-stage aerobic biological treatment). Taking into account these reconstruction works, the treatment of the wastewater of the cities Grubišno Polje, Veliki Zdenci, Mali Zdenci and Orlovac will be possible (capacity of 14 000 p.e.).

3.2. Primary Needs for the Project

The main aim of the project is to reduce the pollution in river Šovarnica as well as in river Ilova, which water is used for neighboring fishpond.

3.3. Status of Project Preparation

The feasibility study exists and research works are finished, whereas the other documentation is still being prepared.

3.4. Technology Proposed

The mechanical-biological treatment with active sludge is proposed.

3.5. Ownership of Project Site

Municipality of Veliki Zdenci

3.6. Specific Project Items

Common treatment of wastewater of industry PPI "Zdenka" and municipal wastewater

4. Project Effects and Interactions

4.1. Public's Expression of Interest

The public is informed about the project and the discussion is in progress.

4.2. Environmental Impact Assessment

The environmental impact assessment does not exist.

4.3. Sensitivity of Locality/Receptor

The recipient for the wastewater is river Šovarnica that is classified into second category of water quality. The water is used for the fishpond.

4.4. Primary Effects of Project

The project could be characterized as a project of local and national level of importance. The reduction of the BOD with the implementation of the project will be from 70 to 90 percent. The expected reduction of COD will be about 70 percent.

5. Economic Project Justification

5.1. Economic Project Benefits

The construction of the wastewater treatment plant will increase employment rate during the construction and operation period. The treatment will allow water use for fishpond without threat of pollution.

5.2. Economic Internal Rate of Return (EIRR)

EIIR has not been calculated.

6. Financial Viability

6.1. Estimated Investment Cost

The investment costs are preliminary estimated at 6 212 500 US\$.

6.2. Estimated Operational Cost

The total operational costs are preliminary estimated at 165 000 US\$

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

FIIR has not been calculated.

6.5. Anticipated/Proposed Funding Scheme

Courses of funding	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan - central budget			
(5) Public loan - regional budget			
(6) Public loan - municipal budget			
(7) Public grant - central budget			
(8) Public grant - regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds /requirements			

Project 8

The Sewerage and Wastewater Treatment of City of Daruvar

Date of first setting up: Date of latest upgrade:

Project Title The sewerage and wastewater treatment of city of Daruvar

Responsible/Legal Body

Authority/Company "Darkom" d.o.o. Daruvar

Mr. Željko Slivar Name

Kozarčeva 19 **Address**

Telephone +385 43 331044 Fax +385 43 331357

e-mail

Project Target Full functioning of sewerage system and completion of treatment

of wastewater of Daruvar.

938 000 US\$ **Investment Costs**

Status of Project

Ongoing / Planned Project, Planned project

Emerging Concept

Language of Project

Documents

Croatian

1. Project Title

The upgrading of sewerage system and construction of municipal wastewater treatment plant of city of Daruvar

2. Investor Details

2.1. Authority/Company

Name: "Darkom" d.o.o. Daruvar

Address: Kozarčeva 19
Telephone: +385 43 331044
Fax: +385 43 331357

E-mail:

2.2. Contact Persons

Mr. Vladimir Turković, B.Sc.

2.3. Advisor/Consultant

"Hidroprojekt ING" Zagreb; Croatian Waters;

IGH- Institute of Civil Engineering Zagreb

2.4. Legal/Financial Status

Trade company with limited responsibilities

2.5. Authority/Company Profile

Water supply, wastewater disposal, activities on municipal waste disposal;

Number of persons employed: 124

Annual budget 29 000 000 kuna (cca 4 520 000 US\$)

2.6. Planning/Implementing Extent/Capacity of the Investor

The company has neither planning (design) capacities, while implementing capacities exist.

2.7. Institutions/Enterprises beside the Investor

Croatian Waters:

"Hidroprojekt ING" Zagreb; IGH- Institute of Civil Engineering Zagreb;

"Vodoprivreda d.o.o." Daruvar

3. Project Description

3.1. Project Outline

The reconstruction of sewerage system will include some facilities such as connection line on the left bank of river Toplica and other needed structures. The wastewater treatment plant is build for the first phase of mechanical-biological treatment, but with these measures the capacity of the treatment plant is only less than 50 percent of designed capacity. Therefore, the reconstruction and upgrade of the wastewater treatment plant is needed in order to achieve the prescribed goals.

3.2. Primary Needs for the Project

In order to improve the water quality of river Toplica and to meet the prescribed category of the river it is necessary to reconstruct the wastewater treatment plant for city of Daruvar.

3.3. Status of Project Preparation

The main design documentation for the project is prepared.

All documents are in Croatian language.

3.4. Technology Proposed

Standard technology - mechanical-biological treatment and other special approach are also predicted.

3.5. Ownership of Project Site

"Darkom" d.o.o. Daruvar

3.6. Specific Project Items

The location of the project is in the inhabited area of Daruvar.

4. Project Effects and Interactions

4.1. Public's Expression of Interest

There is positive public opinion about the project.

4.2. Environmental Impact Assessment

The environmental impact assessment was finished.

4.3. Sensitivity of Locality/Receptor

The recipient for the wastewater is river Toplica that is classified into second category of water quality and its water is used for the fishponds. Nowadays the river Toplica is classified into the fourth category of water quality.

4.4. Primary Effects of Project

The project could be characterized as a project of regional and national level of importance. The reconstruction of the wastewater treatment plant will increase of removal of BOD for 70 to 90 percent, and the removal of COD up to 70 percent.

5. Economic Project Justification

5.1. Economic Project Benefits

5.2. Economic Internal Rate of Return (EIRR)

EIIR has not been calculated

6. Financial Viability

6.1. Estimated Investment Cost

The investment costs are preliminary estimated at 932 000 US\$.

6.2. Estimated Operational Cost

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

FIIR has not been calculated.

6.5. Anticipated/Proposed Funding Scheme

Courses of funding	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan - central budget			
(5) Public loan - regional budget			
(6) Public loan - municipal budget			
(7) Public grant - central budget			
(8) Public grant - regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements			

Project 9

The Sewerage and Wastewater Treatment of City of Garešnica

Date of first setting up: Date of latest upgrade:

Project Title The sewerage and wastewater treatment of city of Garešnica

Responsible/Legal Body

Authority/Company Municipality of Garešnica

Name Mr. Mato Rijetković

Address Garešnica

Telephone +385 43 531022 **Fax** +385 43 531568

e-mail

Project Target To finish the construction of sewerage system and to reconstruct

the wastewater treatment plant

Investment Costs 2 350 000 US\$

Status of Project

Ongoing/Planned Project, Emerging Concept Ongoing project

Language of Project

Documents

Croatian

1. Project Title

The sewerage and wastewater treatment of city of Garešnica

2. Investor Details

2.1. Authority/Company

Name: Municipality of Garešnica

Address: Garešnica

Telephone: +385 43 531022 Fax: +385 43 531568

E-mail:

2.2. Contact Persons

Mr. Mato Rijetković

2.3. Advisor/Consultant

Croatian Waters

2.4. Legal/Financial Status

State institution

2.5. Authority/Company Profile

State institution

2.6. Planning/Implementing Extent/Capacity of the Investor

The company has neither planning (design) capacities, nor implementing capacities.

2.7. Institutions/Enterprises beside the Investor

Croatian Waters; "Hidroprojekt Consult" Zagreb;

"Hidroprojekt EKO" Zagreb;

3. Project Description

3.1. Project Outline

For the area of Garešnica the mixed sewerage system is planned for the discharge of wastewaters towards the treatment plant and further to the river Ilova.

3.2. Primary Needs for the Project

In order to protect the recipient the completion of sewerage network and the reconstruction of central wastewater treatment plant are needed.

3.3. Status of Project Preparation

Nowadays the sewerage network is completed in one part of Garešnica and mechanical-biological treatment with total capacity of 7 000 p.e. It is necessary to achieve the capacity of 12 000 p.e. of the treatment plant.

3.4. Technology Proposed

Standard technology - mechanical-biological treatment.

3.5. Ownership of Project Site

Municipality of Garešnica

3.6. Specific Project Items

4. Project Effects and Interactions

4.1. Public's Expression of Interest

There is positive public interest for the project.

4.2. Environmental Impact Assessment

There is no the environmental impact assessment.

4.3. Sensitivity of Locality/Receptor

The recipient for the wastewater is river Ilova that is classified into second category of water quality.

4.4. Primary Effects of Project

The project could be characterized as a project of local level of importance.

5. Economic Project Justification

5.1. Economic Project Benefits

5.2. Economic Internal Rate of Return (EIRR)

EIRR has not been calculated.

6. Financial Viability

6.1. Estimated Investment Cost

The investment costs are estimated at 2 350 000 US\$.

6.2. Estimated Operational Cost

The total operational costs are preliminary estimated at 100 000 US\$.

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

FIRR has not been calculated.

6.5. Anticipated/Proposed Funding Scheme

G 66 1	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			-
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan – central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant – central budget			
(8) Public grant – regional budget			
(9) Public grant – municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds /requirements			

Project 10

The Sewerage and Wastewater Treatment of Cities of Pakrac and Lipik

Date of first setting up: Date of latest upgrade:

Project Title The sewerage and wastewater treatment of cities of Pakrac and

Lipik

Responsible/Legal Body

Authority/Company Public enterprise KP "Pakrac" s.p.o. Pakrac

Name Mr. Zdravko Vostri, director

Address Trg 76 Bataljuna 3

Telephone +385 43 411225

Fax +385 43 411337

e-mail

Project Target To improve the water quality of river Pakra, which water is used

for fish ponds

Investment Costs 1 650 000 US\$

Status of Project

Ongoing/Planned Project,

Emerging Concept

Planned project

Language of Project

Documents

Croatian

1. Project Title

The sewerage and wastewater treatment of cities of Pakrac and Lipik

2. Investor Details

2.1. Authority/Company

Name: Public enterprise KP "Pakrac" s.p.o. Pakrac

Address: Trg 76 Bataljuna 3

Telephone: +385 43 411225

Fax: +385 43 411337

E-mail:

2.2. Contact Persons

Mr. Zdravko Vostri

2.3. Advisor/Consultant

Croatian Waters, IGH - Institute of Civil Engineering Zagreb, "EKO-MLAZ" Novska

2.4. Legal/Financial Status

Public enterprise with limited responsibilities

2.5. Authority/Company Profile

Water supply, wastewater disposal and other sanitary activities;

The number of persons employed: 47

2.6. Planning/Implementing Extent/Capacity of the Investor

The company has neither planning (design) capacities, nor implementing capacities.

2.7. Institutions/Enterprises beside the Investor

Croatian Waters; IGH – Institute of Civil Engineering Zagreb; GP "Kamen" Požega; "Vodoprivreda" d.o.o. Daruvar;

3. Project Description

3.1. Project Outline

For the area of Pakrac and Lipik the works on mixed sewerage system are continued after the war. The first phase (mechanical treatment) for the wastewater treatment plant is finished on the location Dobrovac with capacity of 10 000 p.e. The construction of the biological part of the treatment plant is needed, and therefore the design documentation is in preparation.

3.2. Primary Needs for the Project

The completion of the project is needed in order to protect river Pakra and to allow the use of water for the fishpond and for industry purposes – "Petrokemija" Kutina.

3.3. Status of Project Preparation

The design documentation is in preparation.

3.4. Technology Proposed

Standard technology - mechanical-biological treatment with active sludge.

3.5. Ownership of Project Site

Municipality of Lipik

3.6. Specific Project Items

4. Project Effects and Interactions

4.1. Public's Expression of Interest

The public is acquainted with the project.

4.2. Environmental Impact Assessment

The environmental impact assessment was prepared before the war.

4.3. Sensitivity of Locality/Receptor

The recipient for the wastewater is river Pakra that is classified into second category of water quality.

4.4. Primary Effects of Project

The project could be characterized as a project of local and national level of importance.

5. Economic Project Justification

5.1. Economic Project Benefits

The further treatment of wastewater of Pakrac and Lipik will allow use of water from recipient for the nearby fishpond and for the industrial purposes.

5.2. Economic Internal Rate of Return (EIRR)

EIIR has not been calculated.

6. Financial Viability

6.1. Estimated Investment Cost

The investment costs are preliminary estimated at 1 650 000 US\$.

6.2. Estimated Operational Cost

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

FIIR has not been calculated.

6.5. Anticipated/Proposed Funding Scheme

Sources of funding	Secured	Requested	Non - secured
	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan - central budget			
(5) Public loan - regional budget			
(6) Public loan - municipal budget			
(7) Public grant - central budget			
(8) Public grant - regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements			

Project 11

The Sewerage and Wastewater Treatment of City of Ogulin

Date of first setting up: Date of latest upgrade:

Project Title The sewerage and wastewater treatment of city of Ogulin

Responsible/Legal Body

Authority/Company "Vodovod i kanalizacija" d.o.o. Ogulin

Name Mr. Zdravko Paušić

Address Ivana Gorana Kovačića 14

Telephone +385 47 532001 **Fax** +385 47 532034

e-mail

Project Target To improve the ecological and health conditions in the area and to

diminish the negative impact on environment with special attention

on the sources of drinking water

Investment Costs 3 350 000 US\$

Status of Project

Ongoing/Planned Project,

Emerging Concept

Planned project

Language of Project

Documents

Croatian

1. Project Title

The sewerage and wastewater treatment of city of Ogulin

2. Investor Details

2.1. Authority/Company

Name: "Vodovod i kanalizacija" d.o.o. Ogulin

Address: Ivana Gorana Kovačića 14

Telephone: +385 47 532001 Fax: +385 47 532034

E-mail:

2.2. Contact Persons

Mr. Zdravko Paušić

2.3. Advisor/Consultant

Croatian Waters;

Faculty of Civil Engineering Zagreb.

2.4. Legal/Financial Status

Trade company with limited responsibilities

2.5. Authority/Company Profile

Water supply, wastewater disposal

Number of persons employed: 46

2.6. Planning/Implementing Extent/Capacity of the Investor

The company has neither planning (design) capacities, nor implementing capacities.

2.7. Institutions/Enterprises beside the Investor

Croatian Waters; "Hidroprojekt-ING" Rijeka; "Izgradnja" Ogulin;

"Hidroprojekt ING" Zagreb; "Kaprojekt" Karlovac

3. Project Description

3.1. Project Outline

For the area of Ogulin the mixed sewerage system exists but only for some parts of the city. It means that wastewater from some domestic sources are discharged without any treatment into the septic tanks or directly into the ponors (carst region). Therefore for the region of Ogulin the wastewater treatment plant is planned to be build with capacity of 7500 p.e. for the first phase and the capacity of 15 000 p.e. for the second phase of the project.

3.2. Primary Needs for the Project

In order to stop the further pollution of highly sensitive groundwater aquifers in carst the project must be implemented. Moreover, the carst aquifers are classified into the first category of water quality and therefore they represent valuable source of drinking water.

3.3. Status of Project Preparation

The design documentation is still in preparation.

3.4. Technology Proposed

Standard technology - mechanical-biological treatment with active sludge along with the stabilization of the sludge.

3.5. Ownership of Project Site

The city council of Ogulin.

3.6. Specific Project Items

The future site of the wastewater treatment plant is situated in sensitive carst region.

4. Project Effects and Interactions

4.1. Public's Expression of Interest

The public is informed about the project and the public debate is in progress as well as the collecting of expert's opinion.

4.2. Environmental Impact Assessment

The preparation of the environmental impact assessment is in progress.

4.3. Sensitivity of Locality /Receptor

The recipient is a highly sensitive carst region that is classified into first category of water quality.

4.4. Primary Effects of Project

The project could be characterized as a project of national level of importance. With implementation of the project the reduction of BOD will be between 70 and 90 percent, whereas the reduction of COD will be up to 70 percent.

5. Economic Project Justification

5.1. Economic Project Benefits

The implementation of the project will increase the employment rate during the construction period as well as during the operation period. As a second economic benefit which may be considered is preservation of valuable groundwater resources with possibility of using these resources.

5.2. Economic Internal Rate of Return (EIRR)

EIIR has not been calculate

6. Financial Viability

6.1. Estimated Investment Cost

The investment costs are preliminary estimated at 3 350 000 US\$.

6.2. Estimated Operational Cost

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

FIIR has not been calculated.

6.5. Anticipated/Proposed Funding Scheme

Courses of funding	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan - central budget			
(5) Public loan - regional budget			
(6) Public loan - municipal budget			
(7) Public grant - central budget			
(8) Public grant - regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements			

Project 12

The Sewerage and Wastewater Treatment of the National Park Plitvice Lakes

Date of first setting up: Date of latest upgrade:

Project Title The sewerage and wastewater treatment of the National Park

Plitvice lakes

Responsible/Legal Body

Authority/Company Public institution "Nacionalni park Plitvička jezera"

Name Mr. Stjepan Dujmović, B.Sc.

Address 53231 Plitvička jezera

Telephone +385 53 751000 +385 53 751001 Fax

e-mail

Project Target To protect the water of National Park Plitvice lakes along with the

river Korana (first category) and to stop the load of organic

pollution in carst groundwater aquifers.

16 000 000 US\$ **Investment Costs**

Status of Project

Ongoing/Planned Project,

Emerging Concept

Planned project

Language of Project

Documents

Croatian

1. Project Title

The sewerage and wastewater treatment of the National Park Plitvice lakes

2. Investor Details

2.1. Authority/Company

Name: Public institution "Nacionalni park Plitvička jezera"

Address: 53231 Plitvička jezera

Telephone: +385 53 751000 Fax: +385 53 751001

E-mail:

2.2. Contact Persons

Miss. Antonija Dujmović, B.Sc.

2.3. Advisor/Consultant

Croatian Waters; "Dippold & Gerold Hidroprojekt 91" Zagreb; PMF Zagreb.

2.4. Legal/Financial Status

Public institution

2.5. Authority/Company Profile

Nature protection (plant and animal world), the protection of geological and geomorphological forms, soil, and waters. The presentation and advertisement of National Park Plitvice lakes as an exceptional nature phenomenon.

Number of persons employed: 660

The annual budget: 85 494 595,16 kuna (cca 13 300 000 US\$)

2.6. Planning/Implementing Extent/Capacity of the Investor

The company has neither planning (design) capacities, nor implementing capacities.

2.7. Institutions/Enterprises beside the Investor

Croatian Waters; "Dippold & Gerold Hidroprojekt 91" Zagreb; RNGF Zagreb;

IGH Zagreb

3. Project Description

3.1. Project Outline

According to the approved strategy for development of the Nature Park Plitvice lakes it is necessary to solve the problem of wastewater, i. e. the transport outside the national park and their treatment. One part of the sewerage system was build before the war, but during the war activities it was damaged and destroyed. The reconstruction of the existing sewerage network already took place, whereas the other parts along with the wastewater treatment plant have to be built. The capacity of the treatment plant will be 20 000 p.e. during a tourist season, while for the other periods of the year the capacity is supposed to be of 10 000 p.e. in order to meet strict criterion for the Korana River that is classified into first category of water quality.

3.2. Primary Needs for the Project

The protection of water of the National Park Plitvice lakes and the river Korana.

3.3. Status of Project Preparation

The studies about the project are finished and the supervision of competent institution takes place.

3.4. Technology Proposed

Special technology is proposed.

3.5. Ownership of Project Site

The Republic of Croatia.

3.6. Specific Project Items

The protection of waters of Plitvice lakes

4. Project Effects and Interactions

4.1. Public's Expression of Interest

The public is informed about the project and the public debate is in progress.

4.2. Environmental Impact Assessment

The environmental impact assessment is prepared.

4.3. Sensitivity of Locality/Receptor

The area of Nature Park represents invaluable nature wealth that is classified into first category of water quality as well as river Korana.

4.4. Primary Effects of Project

The project could be characterized as a project of international level of importance. The national park Plitvice Lakes are on the list of UNESCO protected sites and therefore the project is very important from environmental point of view.

5. Economic Project Justification

5.1. Economic Project Benefits

Beside the increased employment rate in case the project is implemented, the protection of river Korana nad National park Plitvice will play important role in development of tourism in that areas.

5.2. Economic Internal Rate of Return (EIRR)

EIIR has not been calculated.

6. Financial Viability

6.1. Estimated Investment Cost

The investment costs are preliminary estimated at 16 000 000 US\$.

6.2. Estimated Operational Cost

The total operational costs are estimated at 160 000 US\$.

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

FIIR has not been calculated.

6.5. Anticipated/Proposed Funding Scheme

Courses of funding	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan - central budget			
(5) Public loan - regional budget			
(6) Public loan - municipal budget			
(7) Public grant - central budget			
(8) Public grant - regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements			

Project 13

The Sewerage and Wastewater Treatment of City of Sisak

Date of first setting up: Date of latest upgrade:

Project Title The sewerage and wastewater treatment of city of Sisak

Responsible/Legal Body

Authority/Company "Sisački vodovod" d.o.o. Sisak

Name Mr. Josip Zebčević, B.Sc.

Address Ruđera Boškovića 10

Telephone +385 44 530275 **Fax** +385 44 530074

e-mail

Project Target To protect the rivers Sava, Kupa and Odra from pollution.

Investment Costs 60 000 000 US\$

Status of Project

Ongoing/Planned Project, Emerging Concept Planned project

Language of Project

Documents

Croatian

1. Project Title

The sewerage and wastewater treatment of city of Sisak

2. Investor Details

2.1. Authority/Company

Name: "Sisački vodovod" d.o.o. Sisak

Address: Ruđera Boškovića 10

Telephone: +385 44 530275

Fax: +385 44 530074

E-mail:

2.2. Contact Persons

Mr. Zoran Cehner, B.Sc.

2.3. Advisor/Consultant

Croatian Waters; "Aqucon" Zagreb;

Faculty of Civil Engineering Zagreb; "Proning DHI" Zagreb

2.4. Legal/Financial Status

Trade company with limited responsibilities

2.5. Authority/Company Profile

Water supply, wastewater disposal;

Number of persons employed: 160

Annual budget 11 407 393 kuna (cca 1 780 000 US\$)

2.6. Planning/Implementing Extent/Capacity of the Investor

The company has neither planning (design) capacities, nor implementing capacities.

2.7. Institutions/Enterprises beside the Investor

Croatian Waters; "Aqucon" Zagreb; "Vodovod" Osijek

Faculty of civil engineering Zagreb.

3. Project Description

3.1. Project Outline

For the area of Sisak the mixed sewerage system exists whereas for surrounding places the separate sewerage system is build. It is necessary to build the connection of the sewerage system to the future wastewater treatment plant and some pumping stations. According to the present situation, a plan is to build the wastewater treatment plant with mechanical-biological treatment with capacity of first phase of 60 000 p.e., while for the second phase the capacity of 90 000 p.e. is proposed

3.2. Primary Needs for the Project

In order to improve the water quality of rivers Kupa, Sava, and Odra to meet the prescribed category of the rivers it is necessary to build the wastewater treatment plant for city of Sisak.

3.3. Status of Project Preparation

The main design documentation for the connection line between existing sewerage system and future wastewater treatment plant are in preparation, while the main design documentation for wastewater treatment plant still has to be prepared. The prefeasibility study for the future treatment plant exists.

All documents are in Croatian language.

3.4. Technology Proposed

Mechanical-biological treatment with application of CAST process along with the treatment of the sludge

3.5. Ownership of Project Site

The city council of Sisak

3.6. Specific Project Items

4. Project Effects and Interactions

4.1. Public's Expression of Interest

There is a positive public opinion present about the project.

4.2. Environmental Impact Assessment

There is no environmental impact assessment.

4.3. Sensitivity of Locality/Receptor

The recipient for the wastewater is river Sava, which is classified into second category of water quality.

4.4. Primary Effects of Project

The project could be characterized as a project of regional and national level of importance. Within the implementation of the project the load of BOD will be reduced from 875 tones/year to 175 tones/year, whereas the reduction of COD will be from 1225 tones/year to 306 tones/year. The distance to the border with Bosnia and Herzegovina is about 50 km along the Sava River.

5. Economic Project Justification

5.1. Economic Project Benefits

The project will increase the employment rate during the construction period as well as during the operation period.

5.2. Economic Internal Rate of Return (EIRR)

EIIR has not been calculated.

6. Financial Viability

6.1. Estimated Investment Cost

The investment cost are preliminary estimated at 60 000 000 US\$.

6.2. Estimated Operational Cost

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

FIIR has not been calculated.

6.5. Anticipated/Proposed Funding Scheme

Common of formaling	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan - central budget			
(5) Public loan - regional budget			
(6) Public loan - municipal budget			
(7) Public grant - central budget			
(8) Public grant - regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds /requirements			

Project 14

The Sewerage and Wastewater Treatment of Cities of Karlovac and Duga Resa

Date of first setting up: Date of latest upgrade:

Project Title The sewerage and wastewater treatment of cities of Karlovac and

Duga Resa

Responsible/Legal Body

Authority/Company "Vodovod i kanalizacija" d.o.o. Karlovac

Name Mr. Branko Bedeniković

Address Gažanski trg 8

Telephone +385 47 611177

Fax +385 47 224893

e-mail

Project Target To protect the rivers Kupa and Mrežnica from pollution in order to

meet the appropriate category of water quality (second category).

Investment Costs 50 000 000 US\$

Status of Project

Ongoing/Planned Project,

Emerging Concept

Ongoing project

Language of Project

Documents

Croatian and English

1. Project Title

The sewerage and wastewater treatment of cities of Karlovac and Duga Resa

2. Investor Details

2.1. Authority/Company

Name: "Vodovod i kanalizacija" d.o.o. Karlovac

Address: Gažanski trg 8

Telephone: +385 47 619177

Fax: +385 47 224895

E-mail: vodovod-i-kanalizacija@ka.tel.hr

2.2. Contact Persons

Mr. Krešimir Veblle, B.Sc.

2.3. Advisor/Consultant

Croatian Waters; "Aqucon" Zagreb;

Faculty of Civil Engineering Zagreb;

2.4. Legal/Financial Status

Trade company with limited responsibilities

2.5. Authority/Company Profile

Water supply, wastewater disposal; municipal solid waste disposal;

Number of persons employed: 181

Annual budget 29 714 789,82 kuna (cca 4 630 000 US\$)

2.6. Planning/Implementing Extent/Capacity of the Investor

The company does not have planning (design) capacities, while the implementing capacities exist along with particular co-operation with other companies.

2.7. Institutions/Enterprises beside the Investor

S.G.1S.p.a. Padova, Italy; "Alten" d.o.o. Nova Gorica, Slovenija; "Ka-projekt" Karlovac; "Proning DHI" Zagreb.

3. Project Description

3.1. Project Outline

For the area of Karlovac and Duga Resa the mixed sewerage system exists. It is necessary to build the connection of the sewerage system to the future wastewater treatment plant. According to the prefeasibility study, a plan is to build the wastewater treatment plant with mechanical-biological treatment with capacity of 60 000 p.e. together with the treatment of the sludge.

3.2. Primary Needs for the Project

It is necessary to reduce the heavy organic pollution and the load of hazardous substances into river Kupa and Mrežnica. Temporary these rivers belong to the third category of quality, but if the measures will be applied the prescribed standards for second category of water quality could be obtained.

3.3. Status of Project Preparation

The main design documentation for the sewerage system is finished, and the construction of main collectors is in progress. For the wastewater treatment plant the concept exists and project is now on international competition – The Government of Italy.

All documents are in English language.

3.4. Technology Proposed

Mechanical-biological treatment with application of newest European technology

3.5. Ownership of Project Site

"Vodovod i kanalizacija" d.o.o. Karlovac

3.6. Specific Project Items

International project

4. Project Effects and Interactions

4.1. Public's Expression of Interest

There is a positive public opinion present about the project in order to return sports and recreation to full extent to the rivers.

4.2. Environmental Impact Assessment

4.3. Sensitivity of Locality/Receptor

The recipient for the wastewater is river Kupa and Mrežnica, which are classified into second category of water quality.

4.4. Primary Effects of Project

The project could be characterized as a project of regional and national level of importance. The reduction of BOD is expected to be from 2532 tones/year to 506 tones/year and the reduction of COD is expected to be from 1570 tones/year to 393 tones/year.

5. Economic Project Justification

- 5.1. Economic Project Benefits
- **5.2.** Economic Internal Rate of Return (EIRR)
- 6. Financial Viability

6.1. Estimated Investment Cost

The investment costs are estimated at 50 000 000 US\$.

6.2. Estimated Operational Cost

The total operational costs are estimated at 215 000 US\$.

- **6.3.** Estimate of Revenues
- **6.4.** Financial Internal Rate of Return (FIRR)

6.5. Anticipated/Proposed Funding Scheme

Courses of funding	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan - central budget			
(5) Public loan - regional budget			
(6) Public loan - municipal budget			
(7) Public grant - central budget			
(8) Public grant - regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements			

Project 15

The Sewerage and Wastewater Treatment of City of Petrinja and Neighbourhood Towns

Date of first setting up: Date of latest upgrade:

Project Title The sewerage and wastewater treatment of city of Petrinja and

neighborhood towns

Responsible/Legal Body

Authority/Company "Privreda" d.d. Sisak

Name Mr. Nikola Badžek, B.Sc.

Address Gundulićeva 14

Telephone +385 44 815810 **Fax** +385 44 815810

e-mail

Project TargetTo protect the rivers that are still clean in their upstream parts with

special attention to groundwater resources. The aim is also to stop further pollution of rivers Kupa and Petrinjčica and bring their

quality to appropriate category.

Investment Costs 31 000 000 US\$

Status of Project

Ongoing/Planned Project,

Emerging Concept

Planned project

Language of Project

Documents

Croatian

1. Project Title

The sewerage and wastewater treatment of city of Petrinja and neighborhood towns

2. Investor Details

2.1. Authority/Company

Name: "Privreda" d.d. Petrinja

Address: Gundulićeva 14

Telephone: +385 44 815810

Fax: +385 44 815810

E-mail:

2.2. Contact Persons

Ms. Vesna Kardaš

2.3. Advisor/Consultant

Croatian Waters;

Faculty of Civil Engineering Zagreb.

2.4. Legal/Financial Status

Trade company with limited responsibilities

2.5. Authority/Company Profile

Water supply, wastewater disposal; municipal solid waste disposal;

Number of persons employed: 145

2.6. Planning/Implementing Extent/Capacity of the Investor

The company has neither planning (design) capacities, nor implementing capacities.

2.7. Institutions/Enterprises beside the Investor

Croatian Waters; "Vodoprivreda" d.o.o. Sisak;

IGH - Institute of Civil Engineering Zagreb.

3. Project Description

3.1. Project Outline

For the area of Petrinja the sewerage system exists where about 50 percent of citizens are connected on the sewerage network. Other citizens have a septic tanks. Nowadays, the wastewater is discharged on four spots without any treatment. Two discharge spots are for municipal wastewater, where other two belong to the meat industry "Gavrilović" and furniture factory. According to the present situation, a plan is to build the common wastewater treatment plant with mechanical-biological treatment with capacity of 50 000 p.e.

3.2. Primary Needs for the Project

First aim is to collect all wastewater and bring it to the future spot of the wastewater treatment plant. In order to improve the water quality of rivers Kupa and Petričnjica to meet the prescribed category of the rivers it is necessary to build the wastewater treatment plant for city of Sisak.

3.3. Status of Project Preparation

The prefeasibility study for the project exists, while other documentation still has to be prepared. All documents are on Croatian language.

3.4. Technology Proposed

Mechanical-biological treatment with the treatment of the sludge

3.5. Ownership of Project Site

The city council of Petrinja

3.6. Specific Project Items

4. Project Effects and Interactions

4.1. Public's Expression of Interest

There is no public opinion present about the project.

4.2. Environmental Impact Assessment

There is no environmental impact assessment.

4.3. Sensitivity of Locality/Receptor

The recipient for wastewater of city of Petrinja is river Kupa, which is classified into second category of water quality.

4.4. Primary Effects of Project

The project could be characterized as a project of regional and national level of importance. The Petrinja is situated about 50 km from the border with Bosnia and Herzegovina. The expected reduction of BOD is 70 to 90 percent and expected reduction of COD is 70 percent in case that project is implemented.

5. Economic Project Justification

5.1. Economic Project Benefits

The higher employment rate is expected during the construction period as well as during operation period.

5.2. Economic Internal Rate of Return (EIRR)

EIIR has not been calculate

6. Financial Viability

6.1. Estimated Investment Cost

The investment costs are preliminary estimated at 31 000 000 US\$.

6.2. Estimated Operational Cost

The total operational costs are preliminary estimated at 190 000 US\$.

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

FIIR has not been calculated.

6.5. Anticipated/Proposed Funding Scheme

Courses of funding	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan - central budget			
(5) Public loan - regional budget			
(6) Public loan - municipal budget			
(7) Public grant - central budget			
(8) Public grant - regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds /requirements			

Project 16

The Central Wastewater Treatment Plant of Area of Cities of Zabok-Orosavlje- Gornja and Donja Stubica

Date of first setting up: Date of latest upgrade:

Project Title The central wastewater treatment plant of area of cities of Zabok-

Orosavlje- Gornja and Donja Stubica

Responsible/Legal Body

Authority/Company Krapinsko-zagorka county

Name Mr. Alojz Mlinarić

Address Krapina

Telephone +385 49 286731 **Fax** +385 49 287368

e-mail

Project Target The aim is to stop further pollution of river Krapina in order to

allow the use of water for irrigation.

Investment Costs 27 300 000 US\$

Status of Project

Ongoing/Planned Project,

Emerging Concept

Planned project

Language of Project

Documents

Croatian

1. Project Title

The central wastewater treatment plant of area of cities of Zabok-Orosavlje-Gornja and Donja Stubica

2. Investor Details

2.1. Authority/Company

Name: Krapinsko-zagorska county

Address: Krapina

Telephone: +385 49 286731 Fax: +385 49 287368

E-mail:

2.2. Contact Persons

Mr. Alojz Mlinarić

2.3. Advisor/Consultant

Croatian Waters;

Faculty of Civil Engineering Zagreb.

2.4. Legal/Financial Status

State institution

2.5. Authority/Company Profile

State institution

2.6. Planning/Implementing Extent/Capacity of the Investor

The institution has neither planning (design) capacities, nor implementing capacities.

2.7. Institutions/Enterprises beside the Investor

Croatian Waters;

IGH - Institute of Civil Engineering Zagreb.

3. Project Description

3.1. Project Outline

For the area the mixed sewerage system exists but it is not completely finished. It is planned to build the wastewater treatment plant partially with the two steps. The first step will include the building of mechanical and biological treatment, whereas the second step will include the reduction of phosphorus and nitrogen.

3.2. Primary Needs for the Project

In order to improve the water quality of river Krapina and to meet the prescribed category of the river it is necessary to build the wastewater treatment plant. Nowadays the river Krapina belongs to the third category according to the existing categorization.

3.3. Status of Project Preparation

The feasibility study for the project exists, while the preparation of other documentation is in progress. Moreover, the request for the location license is also in progress.

3.4. Technology Proposed

Standard approach - mechanical-biological treatment with the treatment of the sludge

3.5. Ownership of Project Site

The state and private property.

3.6. Specific Project Items

4. Project Effects and Interactions

4.1. Public's Expression of Interest

The public is acquainted about the project.

4.2. Environmental Impact Assessment

The environmental impact assessment is being prepared.

4.3. Sensitivity of Locality/Receptor

The recipient for wastewater is river Krapina, which must be brought into the second category of its water quality.

4.4. Primary Effects of Project

The project could be characterized as a project of regional and national level of importance. With the implementation of the first phase of the project the expected reduction of BOD is 80 percent, whereas the expected reduction of COD is 70 percent.

5. Economic Project Justification

5.1. Economic Project Benefits

The project would have positive impact on employment rate.

5.2. Economic Internal Rate of Return (EIRR)

EIIR has not been calculated.

6. Financial Viability

6.1. Estimated Investment Cost

The investment costs are preliminary estimated at 27 300 000 US\$.

6.2. Estimated Operational Cost

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

FIIR has not been calculated.

6.5. Anticipated/Proposed Funding Scheme

Courses of funding	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan - central budget			
(5) Public loan - regional budget			
(6) Public loan - municipal budget			
(7) Public grant - central budget			
(8) Public grant - regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements			

Project 17

The Wastewater Treatment Plant of City of Samobor

Date of first setting up: Date of latest upgrade:

Project Title The wastewater treatment plant of city of Samobor

Responsible/Legal Body

Authority/Company "Komunalac" d.o.o. Samobor and Croatian Waters

Name

Address Perkovčeva 59

Telephone +385 1 781255

Fax

e-mail

Project Target The revision of needed action and pre-investment costs for

reconstruction

Investment Costs

Status of Project

Ongoing/Planned Project, Emerging Concept Planned project

Language of Project

Documents

Croatian

1. Project Title

The wastewater treatment plant of city of Samobor

2. Investor Details

2.1. Authority/Company

Name: "Komunalac" d.o.o. Samobor

Address: Perkovčeva 59, Samobor

Telephone: +385 1 781255

Fax:

E-mail:

2.2. Contact Persons

Mr. Dražen Gerbl

Mr. Slobodan Zorić

2.3. Advisor/Consultant

2.4. Legal/Financial Status

2.5. Authority/Company Profile

2.6. Planning/Implementing Extent/Capacity of the Investor

2.7. Institutions/Enterprises beside the Investor

3. Project Description

3.1. Project Outline

The existing wastewater treatment plant was built in 1983. Because of inappropriate function of treatment plant it is planned to make the analysis of efficiency of the treatment plant with the proposal of measures which must be undertaken in order to met the full efficiency of the treatment.

3.2. Primary Needs for the Project

The aim of the project is to reduce the pollution of river Sava.

3.3. Status of Project Preparation

The preparation of contract for the feasibility study is in progress.

3.4. Technology Proposed

3.5. Ownership of Project Site

3.6. Specific Project Items

The capacity of the wastewater treatment plant is 20 000 p.e.

4. Project Effects and Interactions

4.1. Public's Expression of Interest

4.2. Environmental Impact Assessment

4.3. Sensitivity of Locality/Receptor

The recipient for the wastewater is river Sava, which is classified into second category of water quality.

4.4. Primary Effects of Project

The project could be characterized as a project of regional level of importance.

5. Economic Project Justification

5.1. Economic Project Benefits

5.2. Economic Internal Rate of Return (EIRR)

EIIR has not been calculated.

6. Financial Viability

6.1. Estimated Investment Cost

6.2. Estimated Operational Cost

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

FIIR has not been calculated.

6.5. Anticipated/Proposed Funding Scheme

Common of funding	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan – central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant – central budget			
(8) Public grant – regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements			

Project 18

The Wastewater Treatment Plant of City of Sesvete-East

Date of first setting up: Date of latest upgrade:

Project Title The wastewater treatment plant of city of Sesvete-East

Responsible/Legal Body

Authority/Company Croatian Waters

Name

Address Ulica grada Vukovara 220, Zagreb

Telephone +385 1 6110522 **Fax** +385 1 6151787

e-mail

Project Target The building of mechanical-biological treatment plant

Investment Costs

Status of Project

Ongoing/Planned Project, Emerging Concept Planned project

Language of Project

Documents

Croatian

1. Project Title

The wastewater treatment plant of city of Sesvete-east

2. Investor Details

2.1. Authority/Company

Name: Croatian Waters

Address: Ulica grada Vukovara 220

Telephone: +385 1 6110522 Fax: +385 1 6151787

E-mail:

2.2. Contact Persons

Mr. Jadranko Husarić

2.3. Advisor/Consultant

2.4. Legal/Financial Status

2.5. Authority/Company Profile

2.6. Planning/Implementing Extent/Capacity of the Investor

2.7. Institutions/Enterprises beside the Investor

Designer: "Hidroprojekt-Consult" Zagreb

3. Project Description

3.1. Project Outline

For the eastern part of Sesvete it is planned to build the wastewater treatment plant for municipal as well as for pre-treated industrial wastewater.

3.2. Primary Needs for the Project

In order to improve the water quality of river Sava and to meet the prescribed category of the river it is necessary to build the wastewater treatment plant for city of Sesvete along with other measures.

3.3. Status of Project Preparation

The location license for the project is being prepared.

3.4. Technology Proposed

Mechanical-biological treatment with the treatment of the sludge

3.5. Ownership of Project Site

Project site is reserved for this purpose.

3.6. Specific Project Items

First phase has capacity of 30 000 p.e.

4. Project Effects and Interactions

4.1. Public's Expression of Interest

4.2. Environmental Impact Assessment

The environmental impact assessment is being prepared.

4.3. Sensitivity of Locality/Receptor

The recipient for wastewater of city of Sesvete is river Sava, which is classified into second category of water quality.

4.4. Primary Effects of Project

The project could be characterized as a project of regional level of importance. The reduction of BOD and COD is expected to be 70 to 90 percent and 70 percent respectively.

5. Economic Project Justification

5.1. Economic Project Benefits

The higher employment rate will be achieved if project will be implemented.

5.2. Economic Internal Rate of Return (EIRR)

EIIR has not been calculated.

6. Financial Viability

6.1. Estimated Investment Cost

6.2. Estimated Operational Cost

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

FIIR has not been calculated.

6.5. Anticipated/Proposed Funding Scheme

Sources of funding	Secured	Requested	Non - secured
	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan - central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant – central budget			
(8) Public grant – regional budget			
(9) Public grant – municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements			

The Central Wastewater Treatment Plant of City of Zagreb

Date of first setting up: Date of latest upgrade:

Project Title The central wastewater treatment plant of city of Zagreb

Responsible/Legal Body

Authority/Company

Name

Address

Telephone

Fax

e-mail

Project Target With upgrading of sewerage system and construction of the central

wastewater treatment plant in order to improve the quality of Sava

river

256 000 000 US\$ **Investment Costs**

Status of Project

Ongoing/Planned Project,

Emerging Concept

Planned project

Language of Project Documents

The central wastewater treatment plant of city of Zagreb

2. Investor Details

2.1. Authority/Company

Name:

Address:

Telephone:

Fax:

E-mail:

- 2.2. Contact Persons
- 2.3. Advisor/Consultant
- 2.4. Legal/Financial Status
- 2.5. Authority/Company Profile
- 2.6. Planning/Implementing Extent/Capacity of the Investor
- 2.7. Institutions/Enterprises beside the Investor

3. Project Description

3.1. Project Outline

The sewerage network of city of Zagreb is nowadays split with Sava River into two independent systems. Moreover, the wastewater is directly discharged without any treatment from both systems. The plan is to build the central wastewater treatment plant for both sewerage systems on the left bank of Sava River in order to improve the water quality of the recipient. Therefore, it is necessary to incorporate into the system the connection of the sewerage network from the right bank of Sava River.

3.2. Primary Needs for the Project

The aim of the project is to reduce the pollution of river Sava. Other benefits are the improvement of health conditions in the area and in environment itself.

3.3. Status of Project Preparation

- 3.4. Technology Proposed
- 3.5. Ownership of Project Site
- 3.6. Specific Project Items
- 4. Project Effects and Interactions
- 4.1. Public's Expression of Interest
- 4.2. Environmental Impact Assessment
- 4.3. Sensitivity of Locality/Receptor

4.4. Primary Effects of Project

The project could be characterized as a project of international level of importance, because the untreated wastewater of city of Zagreb significantly affects the quality of Sava River. With the mechanical-biological treatment the reduction of BOD is expected to be from 13 048 tones/year to 2 610 tones/year. The reduction of COD is expected to be from 38 818 tones/year to 9 705 tones/year.

5. Economic Project Justification

5.1. Economic Project Benefits

The employment rate will be increased during the construction period as well as during the operation period.

5.2. Economic Internal Rate of Return (EIRR)

EIIR has not been calculated.

6. Financial Viability

6.1. Estimated Investment Cost

The investment costs are preliminary estimated at 256 000 000 US\$.

6.2. Estimated Operational Cost

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

FIIR has not been calculated.

6.5. Anticipated/Proposed Funding Scheme

Common of form din a	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan - central budget			
(5) Public loan - regional budget			
(6) Public loan - municipal budget			
(7) Public grant - central budget			
(8) Public grant - regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds /requirements			

The Wastewater Treatment Plant of City of Sesvete-North-East

Date of first setting up: Date of latest upgrade:

Project Title The wastewater treatment plant of city of Sesvete-north-east

Responsible/Legal Body

Authority/Company Croatian Waters

Name

Address Ulica grada Vukovara 220, Zagreb

Telephone +385 1 6110522 **Fax** +385 1 6151787

e-mail

Project Target The building of mechanical-biological treatment plant

Investment Costs

Status of Project

Ongoing/Planned Project, Emerging Concept Planned project

Language of Project

Documents

Croatian

The wastewater treatment plant of city of Sesvete-north-east

2. Investor Details

2.1. Authority/Company

Name: Croatian Waters

Address: Ulica grada Vukovara 220

Telephone: +385 1 6110522 Fax: +385 1 6151787

E-mail:

2.2. Contact Persons

Mr. Jadranko Husarić

2.3. Advisor/Consultant

2.4. Legal/Financial Status

2.5. Authority/Company Profile

2.6. Planning/Implementing Extent/Capacity of the Investor

2.7. Institutions/Enterprises beside the Investor

3. Project Description

3.1. Project Outline

For the north-eastern part of Sesvete it is planned to build the wastewater treatment plant.

3.2. Primary Needs for the Project

In order to improve the water quality of river Sava and to meet the prescribed category of the river it is necessary to build the wastewater treatment plant for city of Sesvete along with other measures.

3.3. Status of Project Preparation

The feasibility study exists and it is planned to carry out the research activities and to get the location license for the project.

3.4. Technology Proposed

Mechanical-biological treatment

3.5. Ownership of Project Site

Project site is reserved for this purpose.

3.6. Specific Project Items

First phase has capacity of 6 700 p.e.

4. Project Effects and Interactions

4.1. Public's Expression of Interest

4.2. Environmental Impact Assessment

4.3. Sensitivity of Locality/Receptor

The recipient for the north-east part of Sesvete is rivulet Kašina, which is classified into second category of water quality.

4.4. Primary Effects of Project

The project could be characterized as a project of regional level of importance.

5. Economic Project Justification

5.1. Economic Project Benefits

5.2. Economic Internal Rate of Return (EIRR)

EIIR has not been calculated.

6. Financial Viability

6.1. Estimated Investment Cost

6.2. Estimated Operational Cost

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

FIIR has not been calculated.

6.5. Anticipated/Proposed Funding Scheme

Common of from this o	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan - central budget			
(5) Public loan - regional budget			
(6) Public loan - municipal budget			
(7) Public grant - central budget			
(8) Public grant - regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds /requirements			

The Wastewater Treatment Plant of City of Zaprešić

Date of first setting up: Date of latest upgrade:

Project Title The wastewater treatment plant of city of Zaprešić

Responsible/Legal Body

Authority/Company "Pliva" d.d.; Croatian Waters; City council of Zaprešić

Name

Address

Telephone

Fax

e-mail

Project Target The building of mechanical part of the treatment plan with primary

treatment of the sludge (first phase)

Investment Costs

Status of Project

Ongoing/Planned Project,

Emerging Concept

Planned project

Language of Project

Documents

Croatian; Tender: English

The wastewater treatment plant of city of Zaprešić

2. Investor Details

2.1. Authority/Company

Name: "Pliva" d.d.; Croatian Waters; City council of Zaprešić

Address: Ulica grada Vukovara 220, Zagreb

Telephone: +385 1 3781632; +385 1 6110522; +385 1 700068

Fax: E-mail:

2.2. Contact Persons

Ms. Vesna Kaupa; Mr. Jadranko Husarić; Mr. Vinko Morović

2.3. Advisor/Consultant

2.4. Legal/Financial Status

2.5. Authority/Company Profile

2.6. Planning/Implementing Extent/Capacity of the Investor

2.7. Institutions/Enterprises beside the Investor

"Aquacon" d.o.o. Zagreb

3. Project Description

3.1. Project Outline

For the city of Zaprešić and industry is planned to build the wastewater treatment plant. For the first phase is planned the construction of mechanical part of the treatment plant along with the treatment of the sludge.

3.2. Primary Needs for the Project

In order to improve the water quality of river Sava and to meet the prescribed category of the river it is necessary to build the wastewater treatment plant for city of Zaprešić along with other measures.

3.3. Status of Project Preparation

The actualization of the input data is finished. The preparation of tender documentation for the international competition for technology and equipment is taking place. The location license is being prepared.

3.4. Technology Proposed

Depends on the result of international competition.

3.5. Ownership of Project Site

The purchase of the project site is taking place.

3.6. Specific Project Items

4. Project Effects and Interactions

4.1. Public's Expression of Interest

4.2. Environmental Impact Assessment

4.3. Sensitivity of Locality/Receptor

The recipient for the wastewater of Zaprešić is river Sava, which is classified into second category of water quality.

4.4. Primary Effects of Project

The project could be characterized as a project of regional level of importance.

5. Economic Project Justification

5.1. Economic Project Benefits

5.2. Economic Internal Rate of Return (EIRR)

6. Financial Viability

6.1. Estimated Investment Cost

6.2. Estimated Operational Cost

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

6.5. Anticipated/Proposed Funding Scheme

Sources of funding	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan - central budget			
(5) Public loan - regional budget			
(6) Public loan - municipal budget			
(7) Public grant - central budget			
(8) Public grant - regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements			

The Wastewater Treatment Plant of City of Velika Gorica

Date of first setting up: Date of latest upgrade:

Project Title The wastewater treatment plant of city of Velika Gorica

Responsible/Legal Body

Authority/Company "Velkom" d.o.o. Velika Gorica; Croatian Waters;

Name

Address I.G. Kovačića 13, Velika Gorica; Ulica grada Vukovara 220

Telephone +385 1 721811; +385 1 6110522

Fax

e-mail

Project Target The reconstruction of the oldest part of the treatment plant

Investment Costs 2 200 000 US\$

Status of Project

Ongoing/Planned Project, Emerging Concept Ongoing project

Language of Project

Documents

Croatian

The wastewater treatment plant of city of Zaprešić

2. Investor Details

2.1. Authority/Company

Name: "Velkom" d.o.o. Velika Gorica; Croatian Waters

Address: I.G. Kovačića 13, Velika Gorica;

Telephone: +385 1 3781632

Fax: E-mail:

2.2. Contact Persons

Mr. Gordan Tomas; Mr. Jadranko Husarić

2.3. Advisor/Consultant

Mr. Zlatko Stivan, B.Sc.; "Hidroprojekt-Eko", Zagreb

2.4. Legal/Financial Status

2.5. Authority/Company Profile

2.6. Planning/Implementing Extent/Capacity of the Investor

2.7. Institutions/Enterprises beside the Investor

"Segrad" d.d. Durdevac

3. Project Description

3.1. Project Outline

The works on reconstruction of the wastewater treatment plant will be implemented in several steps. The first step will include the reconstruction of raw mechanical part. The second step will be reconstruction of mechanical-biological part with capacity of 12 000 p.e. and finally the third step will include the treatment of sludge along with the improvement of control unit.

3.2. Primary Needs for the Project

In order to improve the water quality of river Sava and to meet the prescribed category of the river it is necessary to reconstruct the wastewater treatment plant for city of Velika Gorica along with other measures.

3.3. Status of Project Preparation

The reconstruction works on some parts of the treatment plant are in progress.

3.4. Technology Proposed

Technology of the treatment will not be changed.

3.5. Ownership of Project Site

3.6. Specific Project Items

The existing capacity of the treatment plant is 35 000 p.e.

4. Project Effects and Interactions

4.1. Public's Expression of Interest

4.2. Environmental Impact Assessment

The environmental impact assessment is finished.

4.3. Sensitivity of Locality/Receptor

The recipient for the wastewater of Velika Gorica is river Sava, which is classified into second category of water quality.

4.4. Primary Effects of Project

The project could be characterized as a project of regional level of importance.

5. Economic Project Justification

5.1. Economic Project Benefits

5.2. Economic Internal Rate of Return (EIRR)

6. Financial Viability

6.1. Estimated Investment Cost

The investment costs are estimated at 2 200 000 US\$.

6.2. Estimated Operational Cost

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

6.5. Anticipated/Proposed Funding Scheme

Common of funding	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan - central budget			
(5) Public loan - regional budget			
(6) Public loan - municipal budget			
(7) Public grant - central budget			
(8) Public grant - regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements			

The Wastewater Treatment Plant of City of Krašić

Date of first setting up: Date of latest upgrade:

Project Title The wastewater treatment plant of city of Krašić

Responsible/Legal Body

Authority/Company The municipality of Krašić

Name Mr. Matija Ilijanić

Address Krašić 101

Telephone +385 41 810488 **Fax** +385 41 810488

e-mail

Project Target The protection of the river Kupčina which is classified into the

second category for water quality.

Investment Costs 552 000 US\$

Status of Project

Ongoing/Planned Project, Emerging Concept Planned project

Language of Project

Documents

Croatian

The wastewater treatment plant of city of Krašić

2. Investor Details

2.1. Authority/Company

Name: The municipality of Krašić

Address: Krašić 101

Telephone: +385 41 810488 Fax: +385 41 810488

E-mail:

2.2. Contact Persons

Mr. Matija Ilijanić

2.3. Advisor/Consultant

Croatian Waters; Faculty of Civil Engineering Zagreb

2.4. Legal/Financial Status

State institution

2.5. Authority/Company Profile

State institution

2.6. Planning/Implementing Extent/Capacity of the Investor

There is neither planning capacities, nor implementing capacities.

2.7. Institutions/Enterprises beside the Investor

Croatian Waters; Faculty of Civil Engineering Zagreb; "Centrogradnja" d.o.o. Karlovac

3. Project Description

3.1. Project Outline

For the area of Krašić the half-separate sewerage system exists but it is not completely finished. According to the present situation, a plan is to build the wastewater treatment plant with mechanical-biological treatment (bio-lagoons) with capacity of 4150 p.e. The intake of water on the treatment plant is 415 m3/day, while the organic load is 24 kg BOD5/day.

3.2. Primary Needs for the Project

The protection of river Kupčina form pollution because of water use for fishponds.

3.3. Status of Project Preparation

The main and application design is finished. The contracting takes place now along with the preparation of construction works. All documents are in Croatian language.

3.4. Technology Proposed

Standard technology - mechanical-biological treatment with active sludge

3.5. Ownership of Project Site

Municipality of Krašić

3.6. Specific Project Items

4. Project Effects and Interactions

4.1. Public's Expression of Interest

There is a positive public opinion present about the project.

4.2. Environmental Impact Assessment

The environmental impact assessment is not prepared.

4.3. Sensitivity of Locality/Receptor

The recipient for the wastewater of Krašić is river Kupčina, which is classified into second category of water quality. Its water is used for the fishponds and therefore the high level of pollution reduction is required.

4.4. Primary Effects of Project

The project could be characterized as a project of regional and national level of importance.

5. Economic Project Justification

5.1. Economic Project Benefits

The employment rate will be increased during the construction period, as well as the operation period.

5.2. Economic Internal Rate of Return (EIRR)

EIRR has not been calculated.

6. Financial Viability

6.1. Estimated Investment Cost

The investment costs are preliminary estimated at 552 000 US\$.

6.2. Estimated Operational Cost

The total operational costs are preliminary estimated at 46 000 US\$ per year.

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

FIRR has not been calculated.

6.5. Anticipated/Proposed Funding Scheme

Common of from this o	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan – central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant - central budget			
(8) Public grant - regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements			

The Wastewater Treatment Plant of City of Našice

Date of first setting up: Date of latest upgrade:

Project Title The wastewater treatment plant of city of Našice

Responsible/Legal Body

Authority/Company "Našički vodovod" d.o.o. Našice

Name

Address Vinogradska 3, 31 500 Našice

Telephone +385 31 613176 **Fax** +385 31 613196

e-mail

Project Target The protection of the river Našička rijeka which is classified into

the second category for water quality.

Investment Costs 1 100 000 US\$ (first phase – 1998)

Status of Project

Ongoing/Planned Project, Emerging Concept Ongoing project

Language of Project

Documents

Croatian

The wastewater treatment plant of city of Našice

2. Investor Details

2.1. Authority/Company

Name: "Našički vodovod" d.o.o.

Address: Vinogradska 3, 31 500 Našice

Telephone: +385 31 613176 Fax: +385 31613196

E-mail:

2.2. Contact Persons

Mr. Damir Farkaš, B.Sc.

2.3. Advisor/Consultant

"Hidroprojekt-Ing" Zagreb; "SIB" Osijek

2.4. Legal/Financial Status

The company with limited responsibilities

2.5. Authority/Company Profile

Water supply; Collection and treatment of wastewater;

Number of persons employed: 85;

Annual budget: 10 000 000 kuna (cca. 1 560 000 US\$)

2.6. Planning/Implementing Extent/Capacity of the Investor

2.7 Institutions/Enterprises beside the Investor

"Aqua-engineering" Salzburg, Austria

3. Project Description

3.1. Project Outline

The first phase of the first stage is construction of mechanical part of the treatment plant with all facilities.

3.2. Primary Needs for the Project

The protection of river Našička Rijeka which is classified into the second category of water quality.

3.3. Status of Project Preparation

The application design is finished, but still some improvement is needed. The selection of construction company is finished. The definition of contracts and financing mechanism takes place. The start of the works will be in 1998.

3.4. Technology Proposed

Mechanical-biological treatment with capacity of 20 000 p.e. The second stage will be defined after the completion of the first stage.

3.5. Ownership of Project Site

"Našički vodovod" d.o.o. Našice

3.6. Specific Project Items

The step by step approach

4. Project Effects and Interactions

4.1. Public's Expression of Interest

There is a positive public opinion present about the project.

4.2. Environmental Impact Assessment

4.3. Sensitivity of Locality/Receptor

The recipient for the wastewater is river Našička Rijeka, which is classified into second category of water quality.

4.4. Primary Effects of Project

The project could be characterized as a project of regional level of importance.

5. Economic Project Justification

5.1. Economic Project Benefits

The employment rate will be increased during the construction period, as well as during the operation period.

5.2. Economic Internal Rate of Return (EIRR)

6. Financial Viability

6.1. Estimated Investment Cost

The investment costs for the first phase of the project are estimated at 1 100 000 US\$.

6.2. Estimated Operational Cost

The operational costs are preliminary estimated at 120 000 US\$ in case that the project is completely finished (mechanical-biological treatment).

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

6.5. Anticipated Funding Scheme

Courses of from dim o	Secured	Requested	Non - secured
Sources of funding	US\$	US\$	US\$
(1) Equity of project owner	550 000		
(2) National Environmental Fund			
(3) Water Management Fund	550 000		
(4) Public loan – central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant – central budget			
(8) Public grant – regional budget			
(9) Public grant – municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements	1 100 000		

The General Solution of the Sewerage System of City of Osijek

Date of first setting up: Date of latest upgrade:

Project Title The general solution of the sewerage system of city of Osijek

Responsible/Legal Body

Authority/Company JP "Vodovod Osijek" Osijek

Name

Address Poljski put 1, 31 000 Osijek

Telephone +385 31 330100 **Fax** +385 31 330730

e-mail

Project Target The collection and transport of wastewater to the future location of

the wastewater treatment plant

Investment Costs 5 630 000 US\$

Status of Project

Ongoing/Planned Project, Emerging Concept Ongoing project

Language of Project

Documents

The general solution of the sewerage system of city of Osijek

2. Investor Details

2.1. Authority/Company

Name: JP "Vodovod Osijek", Osijek Address: Poljski put 1, 31 000 Osijek

Telephone: +385 31 330100 Fax: +385 31 330730

E-mail:

2.2. Contact Persons

Mr. Andrija Vuković, Mr. Vladimir Vouk.

2.3. Advisor/Consultant

IGH - Institute of Civil Engineering of Croatia

2.4. Legal/Financial Status

Public enterprise

2.5. Authority/Company Profile

Water supply, wastewater disposal;

2.6. Planning/Implementing Extent/Capacity of the Investor

The company has planning and implementing capacities.

2.7. Institutions/Enterprises beside the Investor

Croatian Waters Zagreb; "Vodogradnja" d.o.o. Osijek; "Vuka" d.o.o. Osijek; "Gradnja" d.o.o. Osijek;" ETZ" Osijek

3. Project Description

3.1. Project Outline

The project will solve the problem of collection of wastewaters for city of Osijek. The project includes the construction of the main collector in the southern part of the city with other connections on the rest of the sewerage network.

3.2. Primary Needs for the Project

In order to improve the sanitary and health situation it is necessary to bring the wastewater to the future location of the treatment plant. One of the goals is also the protection of the area where the groundwater is used for the water supply of Osijek.

3.3. Status of Project Preparation

The construction of the main southern collector is in progress. There is still two kilometers of the main collector, which has to be build. There is no documentation in English language.

3.4. Technology Proposed

3.5. Ownership of Project Site

The location for the project is secured.

3.6. Specific Project Items

The building of the main collector is specific because of dimension of the collector.

4. Project Effects and Interactions

4.1. Public's Expression of Interest

There is a positive public opinion present about the project.

4.2. Environmental Impact Assessment

4.3. Sensitivity of Locality/Receptor

4.4. Primary Effects of Project

The project could be characterized as a project of international level of importance. The city of Osijek is situated 20 kilometers upstream from the mouth of river Drava into river Danube, which represents the border between Croatia and FRY. Therefore, significant transboundary effect exists. Moreover, the highly sensitive area of Kopački Rit is also affected by the bed quality of Drava River. Therefore, the complete solution of wastewater treatment of city of Osijek must be achieved as soon as possible. In case that wastewater treatment plant (mechanical-biological treatment) for city of Osijek is built, the expected reduction of BOD and COD will be from 257 tones/year to 51 tones/year and from 3562 tones/year to 891 tones/year respectively. The capacity of the wastewater treatment plant is supposed to be 794 000 p.e. and the investment costs are estimated at 889 280 000 kuna (140 000 000 US\$).

5. Economic Project Justification

5.1. Economic Project Benefits

5.2. Economic Internal Rate of Return (EIRR)

6. Financial Viability

6.1. Estimated Investment Cost

The investment costs are estimated at 5 630 000 US\$.

6.2. Estimated Operational Cost

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

C	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan – central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant – central budget			
(8) Public grant – regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements			

The Wastewater Treatment of City of Durdenovac

Date of first setting up: Date of latest upgrade:

Project Title The wastewater treatment of city of Durdenovac

Responsible/Legal Body

Authority/Company "Rad" d.o.o. Durdenovac

Name

Address Ivana Gundulića 2, Durdenovac

Telephone +385 31 601516 **Fax** +385 31 601516

e-mail

Project Target The treatment of the wastewater for city of Durdenovac

Investment Costs 2 037 000 US\$

Status of Project

Ongoing/Planned Project, **Emerging Concept**

Planned project

Language of Project

Documents

The wastewater treatment plant of city of Durdenovac

2. Investor Details

2.1. Authority/Company

Name: Municipality of Durdenovac

Address: Trg N. Š. Zrinskog, Durdenovac

Telephone: +385 31 602018 Fax: +385 31 602018

E-mail:

2.2. Contact Persons

Mr. Zvonimir Tomašić, Mr. Rade Malenica.

2.3. Advisor/Consultant

"Hidroprojekt-ing» Zagreb

2.4. Legal/Financial Status

Local authority

2.5. Authority/Company Profile

Local authority

2.6. Planning/Implementing Extent/Capacity of the Investor

The authority does neither have planning, nor implementing capacities.

2.7. Institutions/Enterprises beside the Investor

Croatian Waters Zagreb; "Rad" d.o.o. Durdenovac

3. Project Description

3.1. Project Outline

The wastewater treatment plant will consist of the aerated bio-lagoons with sediment tanks.

3.2. Primary Needs for the Project

To reduce the pollution of the environment and the improvement of health situation.

3.3. Status of Project Preparation

The prefeasibility study is being prepared.

3.4. Technology Proposed

The proposed technology consists of the aeration of biolagoons along with active sludge.

3.5. Ownership of Project Site

Public property.

3.6. Specific Project Items

4. Project Effects and Interactions

4.1. Public's Expression of Interest

There is a positive public opinion present about the project.

4.2. Environmental Impact Assessment

4.3. Sensitivity of Locality/Receptor

4.4. Primary Effects of Project

The project could be characterized as a project of regional level of importance.

5. Economic Project Justification

5.1. Economic Project Benefits

5.2. Economic Internal Rate of Return (EIRR)

EIRR has not been calculated.

6. Financial Viability

6.1. Estimated Investment Cost

The investment costs are preliminary estimated at 2 037 000 US\$.

6.2. Estimated Operational Cost

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

FIRR has not been calculated.

Courses of funding	Secured	Requested	Non – secured
Sources of funding			
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan – central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant – central budget			
(8) Public grant – regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements			

The Sewerage System of City of Durdenovac

Date of first setting up: Date of latest upgrade:

Project Title The sewerage system of city of Durdenovac

Responsible/Legal Body

Authority/Company "Rad" d.o.o. Durdenovac

Name

Address Ivana Gundulića 2, Durdenovac

Telephone +385 31 601516 **Fax** +385 31 601516

e-mail

Project Target The collection and discharging to the full extent of wastewater for

city of Durdenovac

Investment Costs 4 861000 US\$

Status of Project

Ongoing/Planned Project, Emerging Concept Planned project

Language of Project

Documents

The sewerage system of city of Durdenovac

2. Investor Details

2.1. Authority/Company

Name: Municipality of Durdenovac

Address: Trg N. Š. Zrinskog, Durdenovac

Telephone: +385 31 602018 Fax: +385 31 602018

E-mail:

2.2. Contact Persons

Mr. Zvonimir Tomašić, Mr. Rade Malenica.

2.3. Advisor/Consultant

"Hidroprojekt-ing» Zagreb

2.4. Legal/Financial Status

Local authority

2.5. Authority/Company Profile

Local authority

2.6. Planning/Implementing Extent/Capacity of the Investor

The authority does neither have planning, nor implementing capacities.

2.7. Institutions/Enterprises beside the Investor

Croatian Waters Zagreb; "Rad" d.o.o. Durdenovac

3. Project Description

3.1. Project Outline

The project will solve the problem of collection of wastewaters for 11 settlements of municipalities of Durdenovac and Našice.

3.2. Primary Needs for the Project

In order to reduce the pollution of the environment and the improvement of health situation it is necessary to bring the wastewater to the future location of the treatment plant.

3.3. Status of Project Preparation

The prefeasibility study is prepared.

3.4. Technology Proposed

The standard technology

3.5. Ownership of Project Site

Public property.

3.6. Specific Project Items

4. Project Effects and Interactions

4.1. Public's Expression of Interest

There is a positive public opinion present about the project.

4.2. Environmental Impact Assessment

4.3 Sensitivity of Locality/Receptor

4.4. Primary Effects of Project

The project could be characterized as a project of regional level of importance.

5. Economic Project Justification

5.1. Economic Project Benefits

5.2. Economic Internal Rate of Return (EIRR)

EIRR has not been calculated.

6. Financial Viability

6.1. Estimated Investment Cost

6.2. Estimated Operational Cost

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

FIRR has not been calculated.

Courses of funding	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan – central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant – central budget			
(8) Public grant – regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements			

The Sewerage System and the Wastewater City otf Župyf ŽanŽj ŽanŽtpt

Date of first setting up: Date of latest upgrade:

Project Title The sewerage system and the wastewater treatment plant of city of

Belišće

Responsible/Legal Body

Authority/Company "Kombel" d.o.o. Belišće

Name

Address Vijenac J. J. Strossmayera 67, Belišće

Telephone +385 32 664705

Fax +385 32 664243

e-mail

Project Target The improvement of temporarily unsatisfactory sanitary situation

in the region.

Investment Costs 4 800 000 US\$

Status of Project

Ongoing/Planned Project,

Emerging Concept

Planned project

Language of Project

Documents

The sewerage system and the wastewater treatment plant of city of Belišće

2. Investor Details

2.1. Authority/Company

Name: "Kombel" d.o.o. Belišće

Address: Vij. J. J. Stossmayerova 67, Belišće

Telephone: +385 31 664705 Fax: +385 31 664022

E-mail:

2.2. Contact Persons

Mr. Zlatko Marušić, director

2.3. Advisor/Consultant

"Hidroprojekt - ing" Zagreb; "Hidroing" Osijek

2.4. Legal/Financial Status

The company with limited responsibilities

2.5. Authority/Company Profile

The sanitary activities;

2.6. Planning/Implementing Extent/Capacity of the Investor

The company has the implementing capacities.

2.7. Institutions/Enterprises beside the Investor

3. Project Description

3.1. Project Outline

The project will solve the problem of wastewaters for city of Belišće and seven neighborhood settlements. The system consists of the separate sewerage network with pumping stations and the wastewater treatment plant.

3.2. Primary Needs for the Project

To solve the problem of wastewaters for the city of Belišće and to improve the environmental and health situation in the region.

3.3. Status of Project Preparation

The prefeasibility study is already prepared and the preparation of feasibility study and main design documentation is in progress.

3.4. Technology Proposed

The special technology – pilot project where the plants are used for the wastewater treatment.

3.5. Ownership of Project Site

The public property

3.6. Specific Project Items

Pilot-project

4. Project Effects and Interactions

4.1. Public's Expression of Interest

There is a positive public response present about the project.

4.2. Environmental Impact Assessment

4.3. Sensitivity of Locality/Receptor

The recipient is river Drava, which is classified into the second category of water quality.

4.4. Primary Effects of Project

The project could be characterized as a project of regional and national level of importance. The main polluter in the city of Belišće is paper factory, which significantly affect the quality of river Drava. Some measures were already undertaken, but due to the war activities the facilities for wastewater treatment were hardly damaged and destroyed. The expected effects of the project will be the reduction of BOD from 1728 tones/year to 346 tones/year and the reduction of COD from 3384 tones/year to 846 tones/year. In case that the project is implemented, the water quality of Drava river will be improved and that will allow the safety use of water for water supply for city of Osijek (100 000 citizens) which is situated 30 kilometers downstream.

5. Economic Project Justification

5.1. Economic Project Benefits

5.2. Economic Internal Rate of Return (EIRR)

EIIR has not been calculated.

6. Financial Viability

6.1. Estimated Investment Cost

The investment costs are preliminary estimated at 4 800 000 US\$.

6.2. Estimated Operational Cost

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

FIIR has not been calculated.

Common of fronting	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan – central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant – central budget			
(8) Public grant – regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements			

The Wastewater Treatment of City of Donji Miholjac

Date of first setting up: Date of latest upgrade:

Project Title The wastewater treatment of city of Donji Miholjac

Responsible/Legal Body

Authority/Company "Park" d.o.o. Donji Miholjac

Name

Address Naselje tržnica 2, Donji Miholjac

Telephone +385 31 632284 **Fax** +385 33 631625

e-mail

Project Target The improvement of water quality of Drava River, which is in this

part of the country the border between Croatia and Hungary.

Investment Costs cca. 11 000 000 US\$

Status of Project

Ongoing/Planned Project, Emerging Concept Planned project

Language of Project

Documents

The wastewater treatment of city of Donji Miholjac

2. Investor Details

2.1. Authority/Company

Name: "Park" d.o.o. Donji Miholjac

Address: Naselje tržnica 2, Donji Miholjac

Telephone: +385 31 632284 Fax: +385 31 631625

E-mail:

2.2. Contact Persons

2.3. Advisor/Consultant

2.4. Legal/Financial Status

The company with limited responsibilities

2.5. Authority/Company Profile

Water supply and other sanitary activities;

2.6. Planning/Implementing Extent/Capacity of the Investor

2.7. Institutions/Enterprises beside the Investor

3. Project Description

3.1. Project Outline

The finishing of the mechanical part of the wastewater treatment plant and construction of the biological part along with the treatment of the sludge. The capacity of the wastewater treatment plant is estimated at 65 000 p.e.

3.2. Primary Needs for the Project

To reduce the pollution of river Drava with the improvement of situation of ecosystem and health conditions.

3.3. Status of Project Preparation

For the mechanical and biological part of the treatment plant the application design is already prepared. Due to the changes in economical conditions and because of long break in works, it is necessary to prepare the assessment of these documents. For the rest of the works, the documentation still has to be prepared.

3.4. Technology Proposed

Standard technology – mechanical-biological treatment with the treatment of the sludge.

3.5. Ownership of Project Site

"Park" d.o.o. Donji Miholjac

3.6. Specific Project Items

4. Project Effects and Interactions

4.1. Public's Expression of Interest

4.2. Environmental Impact Assessment

4.3. Sensitivity of Locality/Receptor

The recipient for the wastewater is river Drava, which is classified into the second category of water quality.

4.4. Primary Effects of Project

The project could be characterized as a project of national and even international level of importance. The Drava River in this strech represents the border between Croatia and Hungary.

5. Economic Project Justification

5.1. Economic Project Benefits

The implementation of the project will increase employment rate during the construction period, as well as during operation period.

5.2. Economic Internal Rate of Return (EIRR)

EIIR has not been calculated.

6. Financial Viability

6.1. Estimated Investment Cost

The investment costs are preliminary estimated at 11 000 000 US\$. It is assumed that 40 percent of the wastewater treatment plant is finished and the total investment costs are estimated at cca. 19 000 000 US\$.

6.2. Estimated Operational Cost

The total operational costs are preliminary estimated at 215 000 US\$ per year.

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

FIIR has not been calculated.

Sources of funding	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan – central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant – central budget			
(8) Public grant – regional budget			
(9) Public grant – municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds /requirements			

The Wastewater Treatment Plant of City of Orahovica

Date of first setting up: Date of latest upgrade:

Project Title The wastewater treatment plant of city of Orahovica

Responsible/Legal Body

Authority/Company "Papuk" d.o.o. Orahovica

Name Mr. Vjekoslav Abičić

Address Vladimira Nazora 14, Orahovica

Telephone +385 33 673217 **Fax** +385 33 673506

e-mail

Project Target The building of the wastewater treatment plant for city of

Orahovica

Investment Costs 1 100 000 US\$

Status of Project

Ongoing/Planned Project, Emerging Concept Planned project

Language of Project

Documents

The wastewater treatment plant of city of Orahovica

2. Investor Details

2.1. Authority/Company

Name: "Papuk" d.o.o. Orahovica

Address: Vladimira Nazora 14, Orahovica

Telephone: +385 33 673217 Fax: +385 33 673506

E-mail:

2.2. Contact Persons

Mr. Vjekoslav Abičić.

2.3. Advisor/Consultant

"Hidroing" d.o.o. Osijek

2.4. Legal/Financial Status

The company with limited responsibilities

2.5. Authority/Company Profile

Water supply; Collection and treatment of wastewater; The collection and disposal of municipal solid waste;

Number of persons employed: 35;

Annual budget: 17 000 000 kuna (cca. 2 650 000 US\$)

2.6. Planning/Implementing Extent/Capacity of the Investor

The company has its own implementing capacities (machinery, etc.)

2.7. Institutions/Enterprises beside the Investor

"Hidroing" d.o.o. Osijek; Croatian Waters Zagreb

3. Project Description

3.1. Project Outline

The building of the wastewater treatment plant with application of standard technology.

3.2. Primary Needs for the Project

The protection of river Vučica which is the tributary of river Drava.

3.3. Status of Project Preparation

The main design documentation is already prepared.

3.4. Technology Proposed

Standard technology

3.5. Ownership of Project Site

The location for the project is not defined yet.

3.6. Specific Project Items

4. Project Effects and Interactions

4.1. Public's Expression of Interest

There is a positive public opinion present about the project.

4.2. Environmental Impact Assessment

The environmental impact assessment does not exist.

4.3. Sensitivity of Locality/Receptor

The recipient for the wastewater is river Vučica, which quality is on the limit of acceptance.

4.4. Primary Effects of Project

The project could be characterized as a project of regional level of importance.

5. Economic Project Justification

5.1. Economic Project Benefits

5.2. Economic Internal Rate of Return (EIRR)

EIIR has not been calculated.

6. Financial Viability

6.1. Estimated Investment Cost

The investment costs are preliminary estimated at 1 100 000 US\$.

6.2. Estimated Operational Cost

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

FIIR has not been calculated.

Compagat from dina	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan – central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant – central budget			
(8) Public grant – regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements			

Project 31

The Sewerage System of Town of Bizovac

Date of first setting up: Date of latest upgrade:

Project Title The sewerage system of town of Bizovac

Responsible/Legal Body

Authority/Company "Dvorac" d.o.o. Valpovo

Name

Address Reljkovićeva 16, Valpovo

Telephone +385 31 651522

Fax

e-mail

Project Target The collection and discharging to the full extent of wastewater for

town of Bizovac

Investment Costs 1 230 000 US\$

Status of Project

Ongoing/Planned Project,

Emerging Concept

Planned project

Language of Project

Documents

The sewerage system of town of Bizovac

2. Investor Details

2.1. Authority/Company

Name: "Dvorac" d.o.o. Valpovo

Address: Reljkovićeva 16, Valpovo

Telephone: +385 31 651522

Fax: +385 31 651522

E-mail:

2.2. Contact Persons

Mr. Zlatko Lacković

2.3. Advisor/Consultant

"Hidroprojekt-ing» Zagreb

2.4. Legal/Financial Status

The company with limited responsibilities

2.5. Authority/Company Profile

Water supply and wastewater disposal;

Number of persons employed: 90;

Annual budget: 20 000 000 kuna (cca. 3 100 000 US\$)

2.6. Planning/Implementing Extent/Capacity of the Investor

The company has implementing capacities.

2.7. Institutions/Enterprises beside the Investor

"Hidroprojekt-ing" Zagreb; "Hidroing" Osijek

3. Project Description

3.1. Project Outline

The project consists of system of primary and secondary sewerage network in order to discharge the wastewater to the future location of the wastewater treatment plant.

3.2. Primary Needs for the Project

In order to reduce the pollution of the environment and the improvement of health situation it is necessary to bring the wastewater to the future location of the treatment plant. This project will contribute to the economical development and especially for the tourist development of Bizovac Spa. Moreover, the appropriate discharging of wastewater of Bizovac will protect valuable groundwater resources for water supply of city of Osijek.

3.3. Status of Project Preparation

The main design documentation is prepared and the location license is being requested.

3.4. Technology Proposed

The standard technology

3.5. Ownership of Project Site

State property.

3.6. Specific Project Items

4. Project Effects and Interactions

4.1. Public's Expression of Interest

There is a positive public opinion present about the project.

4.2. Environmental Impact Assessment

4.3. Sensitivity of Locality/Receptor

4.4. Primary Effects of Project

The project could be characterized as a project of regional and national level of importance.

5. Economic Project Justification

5.1. Economic Project Benefits

The employment rate will be increased during the construction period

5.2. Economic Internal Rate of Return (EIRR)

EIIR has not been calculated.

6. Financial Viability

6.1. Estimated Investment Cost

The investment costs are preliminary estimated at 1 100 000 US\$.

6.2. Estimated Operational Cost

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

FIIR has not been calculated.

Courses of funding	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan – central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant – central budget			
(8) Public grant – regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements			

Project 32

The Wastewater Treatment Plant of Town of Bizovac

Date of first setting up: Date of latest upgrade:

Project Title The wastewater treatment plant of town of Bizovac

Responsible/Legal Body

"Dvorac" d.o.o. Valpovo **Authority/Company**

Name

Address Reljkovićeva 16, Valpovo

Telephone +385 31 651522 **Fax** +385 33 651522

e-mail

Project Target The treatment of the wastewater treatment plant for town of

Bizovac

Investment Costs 4 125 000 US\$

Status of Project

Ongoing/Planned Project,

Emerging Concept

Planned project

Language of Project

Documents

The wastewater treatment plant of town of Bizovac

2. Investor Details

2.1. Authority/Company

Name: "Dvorac" d.o.o. Valpovo

Address: Reljkovićeva 16, Valpovo

Telephone: +385 31 651522 Fax: +385 31 651522

E-mail:

2.2. Contact Persons

Mr. Zlatko Lacković.

2.3. Advisor/Consultant

"HidroIng" d.o.o. Osijek

2.4. Legal/Financial Status

The company with limited responsibilities

2.5. Authority/Company Profile

Water supply and other sanitary activities;

Number of persons employed: 35;

Annual budget: 20 000 000 kuna (cca. 3 115 000 US\$)

2.6. Planning/Implementing Extent/Capacity of the Investor

The company has its own implementing capacities but not to full extent.

2.7. Institutions/Enterprises beside the Investor

"Hidroing" d.o.o. Osijek; "Hidroprojekt-ing" Zagreb; "SIB" Osijek

3. Project Description

3.1. Project Outline

The building of the wastewater treatment plant with application of standard technology. The project is planned to be implemented in several stages from 1998 to 2015.

3.2. Primary Needs for the Project

To reduce the pollution of river Karašica as well as the Drava River.

3.3. Status of Project Preparation

The feasibility study is already prepared.

3.4. Technology Proposed

Standard technology – mechanical-biological treatment with active sludge along with removal of phosphorus

3.5. Ownership of Project Site

Private property.

3.6. Specific Project Items

4. Project Effects and Interactions

4.1. Public's Expression of Interest

There is a positive public approval present about the project.

4.2. Environmental Impact Assessment

4.3. Sensitivity of Locality/Receptor

The recipient for the wastewater is river Vučica, which quality is on the limit of acceptance.

4.4. Primary Effects of Project

The project could be characterized as a project of regional and national level of importance. The improvement of the environment conditions will allow the further development of the tourism in that area. Moreover, the groundwater resources, which are used for water supply of city of Osijek, will be protected.

5. Economic Project Justification

5.1. Economic Project Benefits

The implementation of the project will increase the employment rate during the construction period, as well as during the operation period.

5.2. Economic Internal Rate of Return (EIRR)

EIIR has not been calculated.

6. Financial Viability

6.1. Estimated Investment Cost

The investment costs are preliminary estimated at 4 125 000 US\$.

6.2. Estimated Operational Cost

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

FIIR has not been calculated.

C	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan – central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant – central budget			
(8) Public grant – regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds /requirements			

Project 33 City totfŽuty pantjyyCoyyt

Date of first setting up: Date of latest upgrade:

Project Title The sewerage system of town of Čepin

Responsible/Legal Body

Authority/Company "Urednost" d.o.o. Čepin

Name

Address Kralja Zvonimira 176, Čepin

Telephone +385 31 870500 **Fax** +385 31 870505

e-mail

Project Target The collection and discharging to the full extent of wastewater for

town of Čepin

Investment Costs 11 732 000 US\$

Status of Project

Ongoing/Planned Project,

Emerging Concept

Planned project

Language of Project

Documents

The sewerage system of town of Čepin

2. Investor Details

2.1. Authority/Company

Name: "Urednost" d.o.o. Čepin

Address: Kralja Zvonimira 176, Čepin

Telephone: +385 31 870500 Fax: +385 31 870505

E-mail:

2.2. Contact Persons

Mr. Ante Vuković

2.3. Advisor/Consultant

2.4. Legal/Financial Status

The company with limited responsibilities

2.5. Authority/Company Profile

The sanitary activities;

Number of persons employed: 21;

Annual budget: 1 300 000 kuna (cca. 200 000 US\$)

2.6. Planning/Implementing Extent/Capacity of the Investor

The company does have neither planning, nor implementing capacities.

2.7. Institutions/Enterprises beside the Investor

Municipality of Čepin; Croatian Waters Zagreb.

3. Project Description

3.1. Project Outline

The project consists of system of primary and secondary sewerage network for the settlements of Čepin, Livana and Briješće. The main collector will be 10 000 meters long and the total length of 40 000 meters.

3.2. Primary Needs for the Project

To reduce the pollution of the environment and the improvement of healthy situation. This project will contribute to the economical development of the settlements.

3.3. Status of Project Preparation

The main and application design documentation is already prepared.

3.4. Technology Proposed

The standard technology

3.5. Ownership of Project Site

The municipality of Čepin and the city of Osijek

3.6. Specific Project Items

4. Project Effects and Interactions

4.1. Public's Expression of Interest

There is a big public interest present about the project.

4.2. Environmental Impact Assessment

4.3. Sensitivity of Locality/Receptor

4.4. Primary Effects of Project

The project could be characterized as a project of regional level of importance.

5. Economic Project Justification

5.1. Economic Project Benefits

5.2. Economic Internal Rate of Return (EIRR)

EIIR has not been calculated.

6. Financial Viability

6.1. Estimated Investment Cost

The investment costs are preliminary estimated at 11 732 000 US\$.

6.2. Estimated Operational Cost

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

FIIR has not been calculated.

Courses of funding	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan – central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant – central budget			
(8) Public grant – regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds /requirements			

Project 34

The Retention Basin of the Wastewater Treatment Plant of Virovitica

Date of first setting up: Date of latest upgrade:

Project Title The retention basin of the wastewater treatment plant of Virovitica

Responsible/Legal Body

Authority/Company "Virkom" d.o.o. Virovitica

Name

Address F. Rusana 2, Virovitica

Telephone +385 33 722714 **Fax** +385 33 722926

e-mail

Project Target The acceptance of highly polluted water during intensive storms

and further treatment on existing wastewater treatment plant.

Investment Costs 1 770 000 US\$

Status of Project

Ongoing/Planned Project, Emerging Concept Ongoing project

Language of Project

Documents

The retention basin of the wastewater treatment plant of Virovitica

2. Investor Details

2.1. Authority/Company

Name: "Virkom" d.o.o. Virovitica

Address: F. Rusana 2, Virovitica

Telephone: +385 33 722714 Fax: +385 33 722926

E-mail:

2.2. Contact Persons

Mr. Dražen Golub

2.3. Advisor/Consultant

"VIK - inženjering"

2.4. Legal/Financial Status

The company with limited responsibilities

2.5. Authority/Company Profile

The sanitary activities;

Number of persons employed: 65

2.6. Planning/Implementing Extent/Capacity of the Investor

2.7. Institutions/Enterprises beside the Investor

JVP "Brana" d.o.o.

3. Project Description

3.1. Project Outline

The main purpose of the retention basin is to accept the high discharges during the heavy rainfall events. The water is after that threaded on the existing wastewater treatment plant. The location of the retention basin is just in front of the wastewater treatment plant.

3.2. Primary Needs for the Project

To diminish the high pollution level due to the heavy rainfall in order to enable the appropriate functioning of the treatment plant. This project will allow the treatment of the wastewater of Virovitica to the full extent.

3.3. Status of Project Preparation

The first phase of the project is taking place and temporary the open channel and the facility for the rain spilling are being constructed. The second phase will include the building of basin with the volume of 5 000 cubic meters.

3.4. Technology Proposed

3.5. Ownership of Project Site

"Virkom" d.o.o. Virovitica

3.6. Specific Project Items

4. Project Effects and Interactions

4.1. Public's Expression of Interest

There is a significant public interest present about the project.

4.2. Environmental Impact Assessment

4.3. Sensitivity of Locality/Receptor

4.4. Primary Effects of Project

The project could be characterized as a project of regional level of importance.

5. Economic Project Justification

5.1. Economic Project Benefits

5.2. Economic Internal Rate of Return (EIRR)

6. Financial Viability

6.1. Estimated Investment Cost

The investment costs are estimated at 1 770 000 US\$.

6.2. Estimated Operational Cost

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

Courses of funding	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan – central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant – central budget			
(8) Public grant – regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds /requirements			

Project 35

The Sewerage System and the Wastewater Treatment Plant of Town of Ilok

Date of first setting up: Date of latest upgrade:

Project Title The sewerage system and the wastewater treatment plant of town of Ilok

Responsible/Legal Body

Authority/Company "Komunalije" d.o.o. Ilok

Name

Address Školska b.b. Ilok

Telephone +385 32 741474 **Fax** +385 32 741474

e-mail

Project Target The collection and discharging of wastewater along with the wastewater

treatment for town of Ilok

Investment Costs 31 130 000 US\$

Status of Project

Ongoing/Planned Project,

Emerging Concept

Planned project

Language of Project

Documents

The sewerage system and the wastewater treatment plant of town of Ilok

2. Investor Details

2.1. Authority/Company

Name: "Komunalije" d.o.o. Ilok

Address: Školska b.b., Ilok
Telephone: +385 32 741474
Fax: +385 31 741474

E-mail:

2.2. Contact Persons

Mr. Ivan Klasanović

2.3. Advisor/Consultant

"Hidroprojekt - ing" Zagreb

2.4. Legal/Financial Status

The company with limited responsibilities

2.5. Authority/Company Profile

The sanitary activities;

Number of persons employed: 14;

2.6. Planning/Implementing Extent/Capacity of the Investor

The company has limited planning and implementing capacities.

2.7. Institutions/Enterprises beside the Investor

"Hidroprojekt - ing" Zagreb.

3. Project Description

3.1. Project Outline

The project consists of sewerage network for city of Ilok. The main collector will be 10 014 meters long. Moreover, it is planned to build the wastewater treatment plant.

3.2. Primary Needs for the Project

To solve the problem of wastewaters for the city of Ilok and to improve the environmental and health situation in the region.

3.3. Status of Project Preparation

The feasibility study is already prepared (project number 5261/87).

3.4. Technology Proposed

The definition of technology is still in preparation.

3.5. Ownership of Project Site

The municipality of Ilok

3.6. Specific Project Items

4. Project Effects and Interactions

4.1. Public's Expression of Interest

There is a positive public response present about the project.

4.2. Environmental Impact Assessment

4.3. Sensitivity of Locality/Receptor

4.4. Primary Effects of Project

The project could be characterized as a project of regional level of importance. The Ilok is situated at the river Danube, which is the border between Croatia and FRY.

5. Economic Project Justification

5.1. Economic Project Benefits

The implementation of the project will increase employment rate during the construction period, as well as during operation period.

5.2. Economic Internal Rate of Return (EIRR)

EIIR has not been calculated.

6. Financial Viability

6.1. Estimated Investment Cost

The investment costs are preliminary estimated at 31 130 000 US\$.

6.2. Estimated Operational Cost

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

FIRR has not been calculated.

Courses of funding	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan – central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant – central budget			
(8) Public grant – regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements			

Project 36

The Sewerage System and the Wastewater Treatment Plant of City of Slatina

Date of first setting up: Date of latest upgrade:

Project Title The sewerage system and the wastewater treatment plant of city of

Slatina

Responsible/Legal Body

Authority/Company "Komrad" d.o.o. Slatina

Name

Address Braće Radića 2, Slatina

Telephone +385 33 551252 **Fax** +385 33 551941

e-mail

Project Target The collection and discharging of wastewater along with the

wastewater treatment for town of Slatina

Investment Costs 3 675 000 US\$

Status of Project

Ongoing/Planned Project,

Emerging Concept

Planned project

Language of Project

Documents

The sewerage system and the wastewater treatment plant of city of Slatina

2. Investor Details

2.1. Authority/Company

Name: "Komrad" d.o.o. Slatina Address: Braće Radića 2, Slatina

Telephone: +385 33 551252 Fax: +385 31 551941

E-mail:

2.2. Contact Persons

Mr. Zoran Šreng

2.3. Advisor/Consultant

"Hidroprojekt - ing" Zagreb

2.4. Legal/Financial Status

The company with limited responsibilities

2.5. Authority/Company Profile

The sanitary activities;

Number of persons employed: 53;

2.6. Planning/Implementing Extent/Capacity of the Investor

The company has limited planning capacities.

2.7. Institutions/Enterprises beside the Investor

Croatian Waters Zagreb; The municipality of Slatina.

3. Project Description

3.1. Project Outline

The aim of the project is to connect the existing collectors into one network along with the construction of retention basins and the wastewater treatment plant. It is proposed that first phase of the construction of the treatment plant will include the construction of the mechanical part and second phase will include the construction of biological part of the treatment plant. Moreover, the pre-treatment of industrial wastewaters is also proposed.

3.2. Primary Needs for the Project

To solve the problem of overspilling of wastewaters from the watercourses in the inhabited part of Slatina. By building the wastewater treatment plant the improvement of ecosystems and the further economical development is expected.

3.3. Status of Project Preparation

The design documentation exists for about 4 800 meters of main collector, whereas for the wastewater treatment plant the application design is prepared and expert opinion exist.

3.4. Technology Proposed

The standard technology – mechanical-biological treatment.

3.5. Ownership of Project Site

"Komrad" d.o.o. Slatina

3.6. Specific Project Items

4. Project Effects and Interactions

4.1. Public's Expression of Interest

There is a positive public opinion present about the project.

4.2. Environmental Impact Assessment

4.1. Sensitivity of Locality/Receptor

4.4. Primary Effects of Project

The project could be characterized as a project of regional and national level of importance. The expected reduction of BOD and COD is 70 to 90 percent and 70 percent respectively.

5. Economic Project Justification

5.1. Economic Project Benefits

The implementation of the project will increase the employment during the construction period, as well as during the operation period.

5.2. Economic Internal Rate of Return (EIRR)

EIRR has not been calculated.

6. Financial Viability

6.1. Estimated Investment Cost

The investment costs are preliminary estimated at 3 675 000 US\$.

6.2. Estimated Operational Cost

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

FIRR has not been calculated.

C CC II	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan – central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant – central budget			
(8) Public grant – regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements			

The Wastewater Treatment Plant of City of City of Žiup Žaoin j Žyu

Date of first setting up: Date of latest upgrade:

Project Title The wastewater treatment plant of city of Čakovec and nearby

towns

Responsible/Legal Body

Authority/Company "Međimurske vode" d.o.o. Čakovec

Name

Address Mihovljanska 68, 40 000 Čakovec

Telephone +385 40 810022 **Fax** +385 40 314260

e-mail <u>medjimurske-vode@ck.tel.hr</u>

Project Target The treatment of the municipal and industrial wastewater for city

of Čakovec and nearby towns in order to reduce the pollution of

river Trnava

Investment Costs 7 316 000 US\$

Status of Project

Ongoing/Planned Project,

Emerging Concept

Ongoing project

Language of Project

Documents

The wastewater treatment plant of city of Čakovec and nearby towns (Nedelišće, Strahoninec, Savska Ves, Ivanovec, Pribislavec, Mihovljan, Novo Selo Rok, Mačkovec, Šenkovec)

2. Investor Details

2.1. Authority/Company

Name: "Međimurske vode" d.o.o. Čakovec

Address: Mihovljanska 68, Čakovec

Telephone: +385 40 810022 Fax: +385 40 314260

E-mail: medjimurske-vode@ck.tel.hr

2.2. Contact Persons

Ms. Štefanija Horvat.

2.3. Advisor/Consultant

Mr. Mladen Damiš, Mr. Ivan Klasić, Mr. Ratomir Orlovac;

"Hidroprojekt-ing" Zagreb – Mr. Zlatko Stivan, B.Sc.

2.4. Legal/Financial Status

The company with limited responsibilities

2.5. Authority/Company Profile

Water management activities; Water supply; Wastewater disposal; Civil engineering works, etc.

Number of persons employed: 184;

Annual turnover: 20 000 000,00 kuna (cca 3 115 000 US\$)

2.6. Planning/Implementing Extent/Capacity of the Investor

The authority does not have planning capacities, but does have implementing capacities.

2.7. Institutions/Enterprises beside the Investor

Croatian Waters Zagreb; Međimurska county; Municipalities of Čakovec and nearby towns

3. Project Description

3.1. Project Outline

The wastewater treatment plant consists of the mechanical-biological part along with the treatment of the sludge with capacity of 70 000 p.e. For the sludge the separated stabilization, dehidratization and final treatment is included.

3.2. Primary Needs for the Project

By constructing the wastewater treatment plant the pollution of river Trnava will be minimized, because river Trnava actually became the open sewerage channel of Čakovec. These measures will improve the health situation and it will improve the quality of life along the river. It will also improve the water quality of river Mura, which represents the border between Croatia and Hungary. Therefore, significant transboundary effect exists. Moreover, the river Trnava has a long periods of low discharges during the year.

3.3. Status of Project Preparation

The final implementation of project is taking place.

3.4. Technology Proposed

The mechanical-biological treatment along with the treatment of sludge.

3.5. Ownership of Project Site

"Međimurske vode" d.o.o. Čakovec

3.6. Specific Project Items

4. Project Effects and Interactions

4.1. Public's Expression of Interest

The public is permanently informed about the project implementation through the media with active participation by asking some questions about the project.

4.2. Environmental Impact Assessment

4.3. Sensitivity of Locality/Receptor

The river Trnava has a long periods of low discharges during the year. Furthermore, the quality of groundwater resources is also threatened because the dominant type of soil is gravel in this area.

4.4. Primary Effects of Project

The project could be characterized as a project of international level of importance, because the final recipient river Mura is the border between Croatia and Hungary.

5. Economic Project Justification

5.1. Economic Project Benefits

5.2. Economic Internal Rate of Return (EIRR)

6. Financial Viability

6.1. Estimated Investment Cost

The investment costs are estimated at 7 316 000 US\$.

6.2. Estimated Operational Cost

The operational costs are estimated at 230 000 US\$ per year.

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

C	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan – central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant – central budget			
(8) Public grant – regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements			

The Wastewater Treatment Plant of City of Novi Marof

Date of first setting up: Date of latest upgrade:

Project Title The wastewater treatment plant of city of Novi Marof

Responsible/Legal Body

Authority/Company Municipality of Novi Marof

Name

Address Trg hrvatske državnosti 1, Novi Marof

Telephone +385 42 611023 **Fax** +385 42 611446

e-mail

Project Target The treatment of municipal wastewaters of Novi Marof and the

improvement of water quality of Bednja river

Investment Costs 2 335 000 US\$

Status of Project

Ongoing/Planned Project, Emerging Concept Planned project

Language of Project

Documents

The wastewater treatment plant of city of Novi Marof

2. Investor Details

2.1. Authority/Company

Name: Municipality of Novi Marof

Address: Trg hrvatske državnosti 1, Novi Marof

Telephone: +385 42 611023 Fax: +385 42 611446

E-mail:

2.2. Contact Persons

Mr. Vlado Stepančec

2.3. Advisor/Consultant

"Proton" d.o.o. Varaždin

2.4. Legal/Financial Status

Local authority

2.5. Authority/Company Profile

Local authority

2.6. Planning/Implementing Extent/Capacity of the Investor

The authority has neither planning, nor implementing capacities.

2.7. Institutions/Enterprises beside the Investor

Not defined yet

3. Project Description

3.1. Project Outline

The wastewater treatment plant will consist of mechanical and biological part. The location of the future treatment plant will be on Bednja River. The main elements, which are taken into account in this project, are to get the quality of effluent according to European standards and to construct the treatment plant in several phases.

3.2. Primary Needs for the Project

By finishing the wastewater treatment plant the appropriate quality of river Bednja must be achieved.

3.3. Status of Project Preparation

The main design documentation is prepared for the project.

3.4. Technology Proposed

Primary (mechanical), secondary (biological along with active sludge approach) and tertiary (lagoons) treatment is proposed.

3.5. Ownership of Project Site

The location for the project is purchased.

3.6. Specific Project Items

4. Project Effects and Interactions

4.1. Public's Expression of Interest

The public is informed about the project.

4.2. Environmental Impact Assessment

4.3 Sensitivity of Locality/Receptor

The river Bednja is classified into the second category of water quality and it is the tributary of the Drava River, which represents the border between Croatia and Hungary.

4.4. Primary Effects of Project

The project could be characterized as a project of regional level of importance.

5. Economic Project Justification

5.1. Economic Project Benefits

5.2. Economic Internal Rate of Return (EIRR)

EIRR has not been calculated.

6. Financial Viability

6.1. Estimated Investment Cost

The investment costs are preliminary estimated at 2 335 000 US\$.

6.2. Estimated Operational Cost

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

FIRR has not been calculated.

Sources of funding	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan – central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant – central budget			
(8) Public grant – regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements			

The Wastewater Treatment Plant of City of Ivanec

Date of first setting up: Date of latest upgrade:

Project Title The wastewater treatment plant of city of Ivanec

Responsible/Legal Body

Authority/Company "Ivkom" d.d. Ivanec

Name

Address Vladimira Nazora 96b, Ivanec

Telephone +385 42 781710

Fax +385 42 781307

e-mail

Project Target The wastewater treatment from the mixed sewerage network of the

city

Investment Costs 950 000 US\$

Status of Project

Ongoing/Planned Project, Emerging

Concept

Planned project

Language of Project

Documents

The wastewater treatment plant of city of Ivanec

2. Investor Details

2.1. Authority/Company

Name: "Ivkom" d.d. Ivanec

Address: Vladimira Nazora 96b, Ivanec

Telephone: +385 42 781710 Fax: +385 42 781307

E-mail:

2.2. Contact Persons

Mr. Ranko Zbodulja

2.3. Advisor/Consultant

2.4. Legal/Financial Status

2.5. Authority/Company Profile

Sanitary activities;

Number of persons employed: 60

2.6. Planning/Implementing Extent/Capacity of the Investor

The company has limited implementing capacities.

2.7. Institutions/Enterprises beside the Investor

3. Project Description

3.1. Project Outline

The wastewater treatment plant will consist of mechanical and biological part and the treatment plant will be connected to existing mixed sewerage network. The location of the future treatment plant will be on the downstream part of the Bednja River.

3.2. Primary Needs for the Project

To reduce the pollution of the Bednja River downstream of city of Ivanec.

3.3. Status of Project Preparation

The application design documentation is prepared.

3.4. Technology Proposed

Mechanical biological treatment along with nitrification and denitrification with total capacity of 30 000 p.e.

3.5. Ownership of Project Site

Private property of the citizens of Ivanec

3.6. Specific Project Items

4. Project Effects and Interactions

4.1. Public's Expression of Interest

4.2. Environmental Impact Assessment

4.3. Sensitivity of Locality/Receptor

The recipient is river Bednja, which is classified into the second category of water quality.

4.4. Primary Effects of Project

The project could be characterized as a project of regional level of importance. The reduction of BOD and COD is expected to be 80 and 70 percent respectively.

5. Economic Project Justification

5.1. Economic Project Benefits

The construction of the wastewater treatment plant will increase the employment rate during the both construction and operation period.

5.2. Economic Internal Rate of Return (EIRR)

EIRR has not been calculated.

6. Financial Viability

6.1. Estimated Investment Cost

The investment costs are preliminary estimated at 950 000 US\$.

6.2. Estimated Operational Cost

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

FIRR has not been calculated.

C	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan – central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant – central budget			
(8) Public grant – regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds /requirements			

The Wastewater Treatment Plant of City of Koprivnica

Date of first setting up: Date of latest upgrade:

Project Title The wastewater treatment plant of city of Koprivnica

Responsible/Legal Body

Authority/Company Municipality of Koprivnica

Name

Address Zrinjski trg 1, Koprivnica

Telephone +385 48 622370 **Fax** +385 48 827936

e-mail

Project Target The treatment of municipal and industrial wastewater of

Koprivnica and the improvement of the rivulet Bistra and Drava

River

Investment Costs 10 840 000 US\$

Status of Project

Ongoing/Planned Project,

Emerging Concept

Planned project

Language of Project

Documents

The wastewater treatment plant of city of Koprivnica

2. Investor Details

2.1. Authority/Company

Name: Municipality of Koprivnica Address: Zrinjski trg 1, Koprivnica

Telephone: +385 48 622370 Fax: +385 48 827936

E-mail:

2.2. Contact Persons

Mr. Marijan Kuzmić

2.3. Advisor/Consultant

"Dippold & Gerold - Hidroprojekt 91" d.o.o. Zagreb

2.4. Legal/Financial Status

Local authority

2.5. Authority/Company Profile

Local authority

2.6. Planning/Implementing Extent/Capacity of the Investor

The authority has neither planning nor implementing capacities.

2.7. Institutions/Enterprises beside the Investor

Croatian Waters - department in Varaždin

3. Project Description

3.1. Project Outline

The mechanical part of the treatment plant is constructed whereas the biological part together with the treatment of the sludge still have to be build. The capacity of the wastewater treatment plant will be 101 000 p.e. The feasibility study includes the extension of the capacity of the treatment plant up to 150 000 p.e. Nowadays the load of pollution into the treatment plant is equal to 70000-80000 p.e.

3.2. Primary Needs for the Project

By finishing the wastewater treatment plant the appropriate quality of river Bistra must be achieved (second category) which actually contribute the most to the pollution of Drava River in this area. This strech of river Drava is shared between Croatia and Hungary and therefore the significant transboundary effect exists.

3.3. Status of Project Preparation

The feasibility study for the needed activities is prepared.

3.4. Technology Proposed

Mechanical biological treatment along with the treatment of the sludge

3.5. Ownership of Project Site

The city of Koprivnica

3.6. Specific Project Items

4. Project Effects and Interactions

4.1. Public's Expression of Interest

There is a positive public opinion about the project.

4.2. Environmental Impact Assessment

4.3. Sensitivity of Locality/Receptor

The river Bistra is so polluted that it represents the treat for the health of people and significantly contributes to the pollution of Drava River.

4.4. Primary Effects of Project

The project could be characterized as a project of international level of importance. The reduction of BOD will be from 755 tones/year to 151 tones/year and the reduction of COD will be from 1075 tones/year to 269 tones/year in case that project is implemented.

5. Economic Project Justification

5.1. Economic Project Benefits

The employment rate will be increased during the construction period as well as during operation period. Moreover, the use of cleaner water of Drava River will also increase the use of Drava River for different purposes (irrigation, industry, recreation).

5.2. Economic Internal Rate of Return (EIRR)

EIRR has not been calculated.

6. Financial Viability

6.1. Estimated Investment Cost

The investment costs are preliminary estimated at 10 840 000 US\$.

6.2. Estimated Operational Cost

The total operational costs are preliminary estimated at 300 000 US\$ per year.

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

FIRR has not been calculated.

Courses of funding	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan – central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant – central budget			
(8) Public grant – regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds /requirements			

The Sewerage System and the Wastewater Treatment Plant of City of Prelog

Date of first setting up: Date of latest upgrade:

Project Title The sewerage system and the wastewater treatment plant of city of

Prelog

Responsible/Legal Body

Authority/Company Municipality of Prelog

Name

Address Glavna 33, Prelog

Telephone +385 40 645301 **Fax** +385 40 645301

e-mail

Project Target The upgrading of the sewerage network with the construction of

the wastewater treatment plant for city of Prelog

Investment Costs 7 783 000 US\$

Status of Project

Ongoing/Planned Project,

Emerging Concept

Planned project

Language of Project

Documents

The sewerage system and the wastewater treatment plant of city of Prelog

2. Investor Details

2.1. Authority/Company

Name: Municipality of Prelog

Address: Glavna 33, Prelog
Telephone: +385 40 645301
Fax: +385 40 645301

E-mail:

2.2. Contact Persons

Mr. Željko Poredoš, B.Sc.

2.3. Advisor/Consultant

«Međimurje-inženjering»

2.4. Legal/Financial Status

Local authority

2.5. Authority/Company Profile

Local authority

2.6. Planning/Implementing Extent/Capacity of the Investor

The authority has neither planning, nor implementing capacities.

2.7. Institutions/Enterprises beside the Investor

3. Project Description

3.1. Project Outline

The main goal is to solve the problem of collection and treatment of wastewaters for Prelog and other settlements (Cirkovljan, Čehovec, Otok, Oporovec, Čukovec, Draškovec and Hemuševec). Nowadays the wastewater is discharged into the drainage canal of the reservoir of hydroelectric power plant Donja Dubrava on Drava River. From planned three main collectors only two of them are constructed.

3.2. Primary Needs for the Project

To reduce the pollution of the environment and to meet the improvement of health situation in the region.

3.3. Status of Project Preparation

The application design documentation is prepared and some offers from potential construction companies are collected.

3.4. Technology Proposed

3.5. Ownership of Project Site

Partly private property and partly municipal property.

3.6. Specific Project Items

4. Project Effects and Interactions

4.1. Public's Expression of Interest

There is a positive public opinion present about the project.

4.2. Environmental Impact Assessment

4.3. Sensitivity of Locality/Receptor

The recipient is river Drava, which is classified into the second category of water quality.

4.4. Primary Effects of Project

The project could be characterized as a project of regional and national level of importance.

5. Economic Project Justification

5.1. Economic Project Benefits

5.2. Economic Internal Rate of Return (EIRR)

EIRR has not been calculated.

6. Financial Viability

6.1. Estimated Investment Cost

The investment costs are preliminary estimated at 7 783 000 US\$.

6.2. Estimated Operational Cost

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

FIRR has not been calculated.

Courses of funding	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan – central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant – central budget			
(8) Public grant – regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds /requirements			

The Sewerage System and Wastewater Treatment of the Farm «Dubravica» d.d.

Date of first setting up: Date of latest upgrade:

Project Title The sewerage system and wastewater treatment of the farm

«Dubravica» d.d.

Responsible/Legal Body

Authority/Company «Dubravica» d.d. Dubravica

Name

Address P. Štoosa 109, 41293 Dubravica

Telephone +385 41 779330

Fax +385 41 779330 e-mail

Project Target The reconstruction of existing sewerage system and the wastewater

treatment plant

Investment Costs

Status of Project

Ongoing/Planned Project,

Emerging Concept

Planned project

Language of Project

Documents

The sewerage system and wastewater treatment of the farm «Dubravica» d.d.

2. Investor Details

2.1. Authority/Company

Name: «Dubravica» d.d. Dubravica

Address: P. Stoosa 109, Dubravica

Telephone: +385 41 779330 Fax: +385 41 779330

E-mail:

2.2. Contact Persons

Mr. Ivan Barač

2.3. Advisor/Consultant

2.4. Legal/Financial Status

2.5. Authority/Company Profile

2.6. Planning/Implementing Extent/Capacity of the Investor

2.7. Institutions/Enterprises beside the Investor

3. Project Description

3.1. Project Outline

In order to achieve the solution for the wastewater of the farm «Dubravica» d.d. the reconstruction of existing sewerage system (separation of sanitary wastewater from technological wastewater) is necessary. The reconstruction of existing lagoons has to be conducted.

3.2. Primary Needs for the Project

To protect rivulet Sutliste and river Sutla (the second category of water quality) and to allow the use of the river according to the legislation.

3.3. Status of Project Preparation

The design documentation is finished. The next step is getting the location license.

3.4. Technology Proposed

The stabilization of the sludge in the lagoons and transport of the sludge on agricultural land where it serve as a fertilizer.

3.5. Ownership of Project Site

«Dubravica» d.d. Dubravica

3.6. Specific Project Items

4. Project Effects and Interactions

4.1. Public's Expression of Interest

4.2. Environmental Impact Assessment

4.3. Sensitivity of Locality/Receptor

The recipient is river Sutla, which is classified into the second category of water quality.

4.4. Primary Effects of Project

The project could be characterized as a project of regional level of importance.

5. Economic Project Justification

- 5.1. Economic Project Benefits
- 5.2. Economic Internal Rate of Return (EIRR)
- 6. Financial Viability
- **6.1.** Estimated Investment Cost
- **6.2.** Estimated Operational Cost
- **6.3.** Estimate of Revenues
- **6.4.** Financial Internal Rate of Return (FIRR)

Converg of funding	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan – central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant – central budget			
(8) Public grant – regional budget			
(9) Public grant – municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements			

The Erosion and Sustainable Soil Management for Middle Croatia Region (non-structural project)

Date of first setting up: Date of latest upgrade:

Project Title The erosion and sustainable soil management for middle Croatia

region (non-structural project)

Responsible/Legal Body

Authority/Company Faculty of Agronomy Zagreb (Department for plant cultivation)

Name Mr. Ferdo Bašić, PhD.

Address Svetošimunska cesta 25, Zagreb

Telephone +385 1 2393777 **Fax** +385 1 215300

e-mail <u>fbasic@magr.agr.hr</u>

Project Target The determination of most suitable manner of tillage in agricultural

production for the middle Croatia region in order to define influence of different land uses on aquatic ecosystems and on

quality of drinking water

Investment Costs 72 000 US\$

Status of Project

Ongoing/Planned Project,

Emerging Concept

Ongoing project

Language of Project

Documents

Croatian, but with summary on English language

The erosion and sustainable soil management for middle Croatia region (non-structural project)

2. Investor Details

2.1. Authority/Company

Name: Ministry of Science and Technology and Croatian Waters

Address: Strossmayerov trg 4; Ulica grada Vukuvara 220

Telephone: +385 1 4594444; +385 1 6110522 Fax: +385 1 4594469; +385 16151793

E-mail: ured@znanost.hr

2.2. Contact Persons

Mr. Anto Bagić (Croatian Waters)

2.3. Advisor/Consultant

2.4. Legal/Financial Status

2.5. Authority/Company Profile

2.6. Planning/Implementing Extent/Capacity of the Investor

2.7. Institutions/Enterprises beside the Investor

3. Project Description

3.1. Project Outline

For the project's purposes the investigation field is established on agricultural land of «Poljodar» d.d. from Daruvar in 1993. On this site the measurement of the erosion takes place and the influence of different types of tillage on erosion processes is being investigated. The equipment for measurement was given by Mr. Mestroy from Graz, Austria.

3.2. Primary Needs for the Project

To define the influence of different types of tillage on the erosion processes.

3.3. Status of Project Preparation

The documentation about the project exists in English language.

3.4. Technology Proposed

3.5. Ownership of Project Site

«Poljodar-tim» d.d. Daruvar

3.6. Specific Project Items

This project has international character due to the co-operation of experts from Austria, Hungary and Croatia.

- 4. Project Effects and Interactions
- 4.1. Public's Expression of Interest
- 4.2. Environmental Impact Assessment
- 4.3. Sensitivity of Locality/Receptor
- 4.4. Primary Effects of Project
- 5. Economic Project Justification
- **5.1.** Economic Project Benefits
- **5.2.** Economic Internal Rate of Return (EIRR)
- 6. Financial Viability
- **6.1.** Estimated Investment Cost
- **6.2.** Estimated Operational Cost
- **6.3.** Estimate of Revenues
- **6.4.** Financial Internal Rate of Return (FIRR)

Courses of funding	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan – central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant – central budget			
(8) Public grant – regional budget			
(9) Public grant – municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements			

The Influence of Increased Quantity of Mineralized Nitrogen on its Rinse and Growth of Plants (non-structural project)

Date of first setting up: Date of latest upgrade:

Project Title The influence of increased quantity of mineralized nitrogen on its

rinse and growth of plants (non-structural project)

Responsible/Legal Body

Authority/Company Faculty of Agronomy Zagreb (Department for plant cultivation)

Name Mr. Milan Mesić, PhD.

Address Svetošimunska cesta 25, Zagreb

Telephone +385 1 2393777

Fax +385 1 215300

e-mail mmesic@agr.hr

Project Target The determination of optimal use of mineral nitrogen fertilizers

taken in agricultural production in order to reduce the ground water

pollution from drainage systems

Investment Costs 32 000 US\$

Status of Project

Ongoing/Planned Project, Emerging

Concept

Ongoing project

Language of Project

Documents

Croatian

The influence of increased quantity of mineralized nitrogen on its rinse and growth of plants (non-structural project

2. Investor Details

2.1. Authority/Company

Name: Ministry of Science; Croatian Waters; «Petrokemija» d.d. Kutina

Address: Strossmayerov trg 4, Zagreb

Telephone: +385 1 4594444 Fax: +385 1 4594469 E-mail: ured@znanost.hr

2.2. Contact Persons

Mr. Anto Bagić (Croatian Waters); Mr. Ivan Gašpar («Petrokemija» d.d. Kutina)

2.3. Advisor/Consultant

Mr. Anto Bagić (Croatian Waters); Mr. Ivan Gašpar («Petrokemija» d.d. Kutina)

2.4. Legal/Financial Status

2.5. Authority/Company Profile

2.6. Planning/Implementing Extent/Capacity of the Investor

2.7. Institutions/Enterprises beside the Investor

3. Project Description

3.1. Project Outline

The investigation of quantities of nitrogen fertilizers takes place on four fields with different distances of the drainage pipes. The drainage pipes are supplied with or without filter material. This investigation results in the nitrogen balance from these investigation fields.

3.2. Primary Needs for the Project

To define the optimal use of nitrogen fertilizers with regard to the agricultural production and the protection of ground water resources.

3.3. Status of Project Preparation

The project is now in its third year of investigation and the results are given partially, but the final results will be given very soon.

3.4. Technology Proposed

3.5. Ownership of Project Site

«Moslavka» d.d. Kutina

3.6. Specific Project Items

This issue is very important because the further intensive use of nitrogen fertilizers in Croatia is expected along with the extension of agricultural production of individual farmers.

4. Project Effects and Interactions

4.1. Public's Expression of Interest

The public is informed about the project through the television media.

4.2. Environmental Impact Assessment

- 4.3. Sensitivity of Locality/Receptor
- 4.4. Primary Effects of Project
- 5. Economic Project Justification
- **5.1.** Economic Project Benefits
- 5.2. Economic Internal Rate of Return (EIRR)
- 6. Financial Viability
- **6.1.** Estimated Investment Cost
- **6.2.** Estimated Operational Cost
- **6.3.** Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

Courses of funding	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan – central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant – central budget			
(8) Public grant – regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements			

The Wastewater Treatment of Meat Industry PIK «Vrbovec»

Date of first setting up: Date of latest upgrade:

Project Title The wastewater treatment of meat industry PIK «Vrbovec»

Responsible/Legal Body

Authority/Company PIK «Vrbovec» meat industry d.d. Vrbovec

Name Ivan Jedvaj

Address Zagrebačka 140

Telephone +385 1 891024 **Fax** +385 1 891863

e-mail

Project Target The reduction of organic pollution which is present in

technological wastewater and to enable the treatment of wastewater

of meat factory on the municipal wastewater treatment plant

Investment Costs

Status of Project

Ongoing/Planned Project,

Emerging Concept

Planned project

Language of Project

Documents

Croatian

The wastewater treatment of meat industry PIK «Vrbovec»

2. Investor Details

2.1. Authority/Company

Name: PIK «Vrbovec» d.d. Meat industry Vrbovec

Address: Zagrebačka 140
Telephone: +385 1 891024
Fax: +385 1 891863

E-mail:

2.2. Contact Persons

Mr. Davor Rauš

2.3. Advisor/Consultant

Croatian Waters Zagreb; «CONING» Varaždin

2.4. Legal/Financial Status

Joint-stock company with limited responsibilities

2.5. Authority/Company Profile

Production and conditioning of meat;

Number of persons employed: 2 000

2.6. Planning/Implementing Extent/Capacity of the Investor

The company has neither planning, nor implementing capacities.

2.7. Institutions/Enterprises beside the Investor

Croatian Waters, «Coning» Varaždin, «Gradip» Vrbovec

3. Project Description

3.1. Project Outline

The wastewater of meat industry PIK «Vrbovec» is discharged into Luka river and further into Lonja river and annual discharge is about 740 000 m3/year. The two fat capture facilities exist as a pre-treatment of wastewater. The further treatment is predicted to enable the treatment on the central municipal wastewater treatment plant.

3.2. Primary Needs for the Project

By finishing the wastewater treatment plant the appropriate quality of river Luka must be achieved. The input of large quantity of organic pollution will be reduced and permanent dying of fish will be avoided.

3.3. Status of Project Preparation

The feasibility study is being prepared, whereas the arrangements for contracts for the main project documentation are in progress.

3.4. Technology Proposed

Standard technology - mechanical treatment is proposed.

3.5. Ownership of Project Site

The owner of the project site is PIK «Vrbovec» d.d. Vrbovec.

3.6. Specific Project Items

4. Project Effects and Interactions

4.1. Public's Expression of Interest

The public has a positive opinion about the project.

4.2. Environmental Impact Assessment

4.3. Sensitivity of Locality/Receptor

The recipients are rivers Luka and Lonja, which are classified into the second category of water quality.

4.4. Primary Effects of Project

The project could be characterized as a project of regional level of importance.

5. Economic Project Justification

- **5.1.** Economic Project Benefits
- **5.2.** Economic Internal Rate of Return (EIRR)
- 6. Financial Viability
- **6.1.** Estimated Investment Cost
- **6.2.** Estimated Operational Cost
- **6.3.** Estimate of Revenues
- **6.4.** Financial Internal Rate of Return (FIRR)

Connect of funding	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan – central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant – central budget			
(8) Public grant – regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements			

The Wastewater Treatment of Meat Industry City ofŽyoupanjŽjŽja ot

Date of first setting up: Date of latest upgrade:

Project Title The wastewater treatment of meat industry «Gavrilović» d.o.o.

Petrinja

Responsible/Legal Body

Authority/Company «Gavrilović» d.o.o. Petrinja

Name

Address Duga ulica 59, Petrinja

Telephone +385 44 816266 **Fax** +385 44 814194

e-mail

Project Target The cleaning and reconstruction of existing sewerage system which

represent the pre-condition for the treatment of industrial

wastewaters.

Investment Costs 343 000 US\$

Status of Project

Ongoing/Planned Project,

Emerging Concept

Ongoing project

Language of Project

Documents

Croatian

The wastewater treatment of meat industry «Gavrilović» d.o.o. Petrinja

2. Investor Details

2.1. Authority/Company

Name: «Gavrilović» d.o.o. Petrinja

Address: Duga ulica 59, Petrinja

Telephone: +385 44 811203 Fax: +385 44 814194

E-mail:

2.2. Contact Persons

Ms. Milica Opačić, B.Sc.

2.3. Advisor/Consultant

«Rijekatank» Rijeka

2.4. Legal/Financial Status

The company with limited responsibilities

2.5. Authority/Company Profile

Production and conditioning of meat;

Number of persons employed: 450

2.6. Planning/Implementing Extent/Capacity of the Investor

The company has neither planning, nor implementing capacities.

2.7. Institutions/Enterprises beside the Investor

«Rijekatank» Rijeka

3. Project Description

3.1. Project Outline

The first step to achieve the solution for the wastewaters of «Gavrilović» d.o.o. Petrinja is the reconstruction of existing sewerage system and the wastewater treatment plant.

3.2. Primary Needs for the Project

To protect river Kupa and to allow the use of the river according to the legislation.

3.3. Status of Project Preparation

The research works are finished. The next step is cleaning and reconstruction of sewerage network together with demining of the route for main collector.

3.4. Technology Proposed

Not defined yet – the study will be prepared.

3.5. Ownership of Project Site

Not solved yet.

3.6. Specific Project Items

4. Project Effects and Interactions

4.1. Public's Expression of Interest

There is no special public expression about the project.

4.2. Environmental Impact Assessment

4.3. Sensitivity of Locality/Receptor

The recipient is river Kupa, which in its downstream part does not belong to highly sensitive area.

4.4. Primary Effects of Project

The project could be characterized as a project of regional and national level of importance.

5. Economic Project Justification

5.1. Economic Project Benefits

5.2. Economic Internal Rate of Return (EIRR)

6. Financial Viability

6.1. Estimated Investment Cost

6.2. Estimated Operational Cost

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

Common of four dina	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan – central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant – central budget			
(8) Public grant – regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements			

The Wastewater Treatment Plant of «Agroproteinka» d.d.

Date of first setting up: Date of latest upgrade:

Project Title The wastewater treatment plant of «Agroproteinka» d.d.

Responsible/Legal Body

Authority/Company «Agroproteinka» d.d.

Name

Address Industrijska cesta bb, Sesvetski Kraljevec

Telephone +385 1 747633

Fax

e-mail

Project Target The building of the wastewater treatment plant with mechanical-

biological treatment.

Investment Costs

Status of Project

Ongoing/Planned Project, Emerging Concept Planned project

Language of Project

Documents

Croatian

The wastewater treatment plant of «Agroproteinka» d.d.

2. Investor Details

2.1. Authority/Company

Name: «Agroproteinka» d.d.

Address: Industrijska cesta bb, Sesvetski Kraljevec

Telephone: +385 1 747633

Fax: E-mail:

2.2. Contact Persons

Mr. Ante Grlić-Radman.

2.3. Advisor/Consultant

2.4. Legal/Financial Status

Joint-stock company

2.5. Authority/Company Profile

2.6. Planning/Implementing Extent/Capacity of the Investor

2.7. Institutions/Enterprises beside the Investor

«Aquacon» d.o.o. Zagreb

3. Project Description

3.1. Project Outline

The full treatment of the industrial wastewater is proposed, i.e. the two-stage treatment with mechanical-chemical treatment in the first stage, and the biological treatment in the second stage.

3.2. Primary Needs for the Project

To achieve the quality of wastewater as it is prescribed in legislation for the third category of water quality and to improve the quality of river Sava.

3.3. Status of Project Preparation

The biding for the best technology and equipment is carried out. The next step is preparation of application design documentation.

3.4. Technology Proposed

Not clearly defined yet – depends on the results of biding.

3.5. Ownership of Project Site

«Agroproteinka» d.d. Sesvetski Kraljevec

3.6. Specific Project Items

4. Project Effects and Interactions

4.1. Public's Expression of Interest

4.2. Environmental Impact Assessment

4.3. Sensitivity of Locality/Receptor

The recipient is canal Črnec along with the canal Lonja-Strug.

4.4. Primary Effects of Project

The project could be characterized as a project of regional level of importance.

5. Economic Project Justification

5.1. Economic Project Benefits

5.2. Economic Internal Rate of Return (EIRR)

6. Financial Viability

6.1. Estimated Investment Cost

6.2. Estimated Operational Cost

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

Courses of funding	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan – central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant – central budget			
(8) Public grant – regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements			

The Building of the System for the Collection and Treatment of Highly Polluted Wastewater of «Petrokemija» d.d. Kutina

Date of first setting up: Date of latest upgrade:

Project Title The building of the system for the collection and treatment of

highly polluted wastewater of «Petrokemija» d.d. Kutina

Responsible/Legal Body

Authority/Company «Petrokemija» d.d. Kutina; Croatian Waters Zagreb

Name

Address Aleja Vukovar 4, Kutina

Telephone +385 44 674122 **Fax** +385 44 622909

e-mail

Project Target The reduction of the wastewater quantity and the reduction of

pollution from chemical industry «Petrokemija» d.d. Kutina.

Investment Costs 953 000 US\$

Status of Project

Ongoing/Planned Project,

Emerging Concept

Ongoing project

Language of Project

Documents

Croatian

The building of the system for the collection and treatment of highly polluted wastewater of «Petrokemija» d.d. Kutina

2. Investor Details

2.1. Authority/Company

Name: «Petrokemija» d.d. Kutina; Croatian Waters Zagreb

Address: Aleja Vukovar 4, Kutina

Telephone: +385 44 674122 Fax: +385 44 622909

E-mail:

2.2. Contact Persons

Mr. Stjepan Leaković, B.Sc.; Mr. Nikola Gabrić, B.Sc. (Croatian Waters Zagreb).

2.3. Advisor/Consultant

They will be defined after the making contract with the constructor.

2.4. Legal/Financial Status

Joint-stock company (private ownership)

2.5. Authority/Company Profile

The production of mineral fertilizers, etc.

2.6. Planning/Implementing Extent/Capacity of the Investor

2.7. Institutions/Enterprises beside the Investor

They will be defined after the making the contract with the constructor.

3. Project Description

3.1. Project Outline

The project includes the following: the building of the legalization tank for wastewater; the construction of connecting line to the plants KAN 1 and AN/KAN 2; the equipment for water discharge measurements and control center.

3.2. Primary Needs for the Project

The reduction of level of pollution from the industry and the reduction of the quantity of raw water by using the wastewater again in production process.

3.3. Status of Project Preparation

The design is finished and the works will be carried out in 1998 and 1999.

3.4. Technology Proposed

3.5. Ownership of Project Site

«Petrokemija» d.d. Kutina

3.6. Specific Project Items

The permanent treatment of wastewaters of «Petrokemija» d.d. Kutina is secured. The highly polluted wastewater occurs in short period of time and in a large quantities due to the specific technological processes.

4. Project Effects and Interactions

4.1. Public's Expression of Interest

The public is informed very well about the project throughout the media.

4.2. Environmental Impact Assessment

4.3. Sensitivity of Locality/Receptor

The recipient is river Ilova and on the mouth of river Ilova into the river Sava the settlement Trebež exists.

4.4. Primary Effects of Project

The project could be characterized as a project of national level of importance.

5. Economic Project Justification

5.1. Economic Project Benefits

5.2. Economic Internal Rate of Return (EIRR)

6. Financial Viability

- **6.1.** Estimated Investment Cost
- **6.2.** Estimated Operational Cost
- **6.3.** Estimate of Revenues
- **6.4.** Financial Internal Rate of Return (FIRR)

Connect of funding	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan – central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant – central budget			
(8) Public grant – regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements			

The Wastewater Treatment Plant of Food Industry «Kvasac-Podravka» d.d. of Koprivnica

Date of first setting up: Date of latest upgrade:

Project Title The wastewater treatment plant of food industry «Kvasac-

Podravka» d.d. of Koprivnica

Responsible/Legal Body

Authority/Company «Podravka» d.d.

Name

Address Ante Starčevića 32, Koprivnica

Telephone +385 48 651265

Fax +385 48 622343

e-mail

Project Target The reconstruction of the existing wastewater treatment plant to

achieve the appropriate level of quality of effluent as it is

prescribed in the water management permit.

Investment Costs 225 000 US\$

Status of Project

Ongoing/Planned Project,

Emerging Concept

Planned project

Language of Project

Documents

The wastewater treatment plant of food industry «Kvasac-Podravka» d.d. of Koprivnica

2. Investor Details

2.1. Authority/Company

Name: «Podravka» d.d.

Address: A. Starčevića 32, Koprivnica

Telephone: +385 48 651265 Fax: +385 48 622343

E-mail:

2.2. Contact Persons

Mr. Daniel Fišter, B.Sc.

2.3. Advisor/Consultant

«Podravka inženjering» Koprivnica

2.4. Legal/Financial Status

Joint-stock company

2.5. Authority/Company Profile

2.6. Planning/Implementing Extent/Capacity of the Investor

2.7. Institutions/Enterprises beside the Investor

3. Project Description

3.1. Project Outline

In order to meet prescribed standards it is necessary to reconstruct the existing pre-treatment of wastewater with the improvement of primary sediment tanks, the facilities for the aerobic processes.

3.2. Primary Needs for the Project

The reduction of negative influence on environment and the reduction of load on the municipal wastewater treatment plant.

3.3. Status of Project Preparation

The feasibility study is prepared and the biding for the best offer for the equipment is carried out.

3.4. Technology Proposed

The technology includes aerobic treatment with active sludge without denitrification.

3.5. Ownership of Project Site

«Podravka» d.d. Koprivnica

3.6. Specific Project Items

4. Project Effects and Interactions

4.1. Public's Expression of Interest

4.2. Environmental Impact Assessment

4.3. Sensitivity of Locality/Receptor

The recipient has a highly sensitive character.

4.4. Primary Effects of Project

The project could be characterized as a project of regional level of importance.

5. Economic Project Justification

5.1. Economic Project Benefits

5.2. Economic Internal Rate of Return (EIRR)

6. Financial Viability

6.1. Estimated Investment Cost

6.2. Estimated Operational Cost

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

Common of form dies o	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan – central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant – central budget			
(8) Public grant – regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds /requirements			

The Wastewater Treatment Plant of Industrial Area Danica of Koprivnica

Date of first setting up: Date of latest upgrade:

Project Title The wastewater treatment plant of industrial area Danica of

Koprivnica

Responsible/Legal Body

Authority/Company «Podravka» d.d.

Name

Address Ante Starčevića 32, Koprivnica

Telephone +385 48 651265

Fax +385 48 622343

e-mail

Project Target The building of the wastewater treatment plant to achieve the

appropriate level of quality of effluent.

Investment Costs 4 000 000 US\$

Status of Project

Ongoing/Planned Project,

Emerging Concept

Planned project

Language of Project

Documents

The wastewater treatment plant of industrial area Danica of Koprivnica

2. Investor Details

2.1. Authority/Company

Name: «Podravka» d.d.

Address: A. Starčevića 32, Koprivnica

Telephone: +385 48 651265 Fax: +385 48 622343

E-mail:

2.2. Contact Persons

Mr. Daniel Fišter, B.Sc.

2.3. Advisor/Consultant

«SHW» Germany; «Coning Ekologija» Varaždin.

2.4. Legal/Financial Status

Joint-stock company

2.5. Authority/Company Profile

2.6. Planning/Implementing Extent/Capacity of the Investor

2.7. Institutions/Enterprises beside the Investor

«SHW» Germany; «Coning Ekologija» Varaždin

3. Project Description

3.1. Project Outline

The full treatment of the industrial wastewater is proposed, i.e. the two-stage treatment with mechanical-chemical treatment in the first stage, and the biological treatment in the second stage. The treatment of the sludge is also proposed within the use of biogas and the use of sludge for agricultural purposes.

3.2. Primary Needs for the Project

The reduction of negative influence on environment and the reduction of load on the municipal wastewater treatment plant.

3.3. Status of Project Preparation

The feasibility study is prepared.

3.4. Technology Proposed

The technology is already known.

3.5. Ownership of Project Site

«Podravka» d.d. Koprivnica

3.6. Specific Project Items

4. Project Effects and Interactions

4.1. Public's Expression of Interest

4.2. Environmental Impact Assessment

4.3. Sensitivity of Locality/Receptor

The recipient has a highly sensitive character.

4.4. Primary Effects of Project

The project could be characterized as a project of regional level of importance.

5. Economic Project Justification

5.1. Economic Project Benefits

5.2. Economic Internal Rate of Return (EIRR)

6. Financial Viability

6.1. Estimated Investment Cost

6.2. Estimated Operational Cost

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

Courses of funding	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan – central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant – central budget			
(8) Public grant – regional budget			
(9) Public grant – municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements			

The Rehabilitation of the Municipal Dumpsite of City of Sisak

Date of first setting up: Date of latest upgrade:

Project Title The rehabilitation of the municipal dump site of city of Sisak

Responsible/Legal Body

Authority/Company Municipality of Sisak

Name Mr. Darko Pavlek, city major

Address Rimska 26, Sisak

Telephone +385 44 524660 **Fax** +385 44 510010

e-mail

Project Target The rehabilitation of the old dumpsite (Goričica) of city of Sisak

during the next five years.

Investment Costs 6 154 000 US\$

Status of Project

Ongoing/Planned Project, Emerging Concept Ongoing project (first phase is started)

Language of Project

Documents

The rehabilitation of the municipal dump site of city of Sisak

2. Investor Details

2.1. Authority/Company

Name: Municipality of Sisak

Address: Rimska 26, Sisak

Telephone: +385 44 523352 Fax: +385 44 523353

E-mail: zglav@open.hr

2.2. Contact Persons

Mr. Ivan Zovler.

2.3. Advisor/Consultant

IGH - Institute of Civil Engineering of Croatia, Zagreb

2.4. Legal/Financial Status

Local authority

2.5. Authority/Company Profile

Local authority

2.6. Planning/Implementing Extent/Capacity of the Investor

2.7. Institutions/Enterprises beside the Investor

«HIS» Višnjica; «Vodoprivreda» Sisak; IGH Zagreb

3. Project Description

3.1. Project Outline

The project includes the following: the research works; the preparation of project documentation and the environmental impact assessment; the building of the dyke and the facilities for drainage and treatment of water; the rehabilitation of the dump site by making the impermeable layer.

3.2. Primary Needs for the Project

The improvement of the state of environment along with the protection of surface waters (river Sava) as well as the groundwater resources. Moreover, by taking these measures the deposition of the dump will be secured for the next 15 years for city of Sisak.

3.3. Status of Project Preparation

The first phase of the implementation of the project already started and included the research works, the preparation of the project documentation and the rehabilitation of the one quarter of the dumpsite.

3.4. Technology Proposed

According to the EU Directives

3.5. Ownership of Project Site

Municipality of Sisak

3.6. Specific Project Items

4. Project Effects and Interactions

- 4.1. Public's Expression of Interest
- 4.2. Environmental Impact Assessment
- 4.3. Sensitivity of Locality/Receptor

4.4. Primary Effects of Project

The project could be characterized as a project of national level of importance.

5. Economic Project Justification

- 5.1. Economic Project Benefits
- 5.2. Economic Internal Rate of Return (EIRR)
- 6. Financial Viability
- **6.1.** Estimated Investment Cost

6.2. Estimated Operational Cost

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

Courses of funding	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan – central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant – central budget			
(8) Public grant – regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements		_	

The Municipal Dumpsite «Doline» of City of Bjelovar

Date of first setting up: Date of latest upgrade:

Project Title The municipal dump site «Doline» of city of Bjelovar

Responsible/Legal Body

Authority/Company Municipality of Bjelovar

Name

Address Gundulićeva 1, Bjelovar

Telephone +385 43 244922 **Fax** +385 43 244615

e-mail

Project Target The building of the municipal dumpsite of city of Bjelovar which

will solve the problem of waste disposal for a longer period.

Investment Costs 2 235 000 US\$ (First phase)

Status of Project

Ongoing/Planned Project, Emerging Concept Ongoing project

Language of Project

Documents

The municipal dump site «Doline» of city of Bjelovar

2. Investor Details

2.1. Authority/Company

Name: Municipality of Bjelovar Address: Gundulićeva 1, Bjelovar

Telephone: +385 43 244922 Fax: +385 43 244615

E-mail:

2.2. Contact Persons

Mr. Mirko Čorba, B.Sc.

2.3. Advisor/Consultant

Mr. Danko Fundurulja

2.4. Legal/Financial Status

Local authority

2.5. Authority/Company Profile

Local authority

2.6. Planning/Implementing Extent/Capacity of the Investor

2.7. Institutions/Enterprises beside the Investor

3. Project Description

3.1. Project Outline

The project includes the building of the new municipal dumpsite for city of Bjelovar according to the all existing legislation and worldwide standards.

3.2. Primary Needs for the Project

By taking these measures the deposition of the dump will be secured for the next 15 years for city of Bjelovar. Moreover, if the recycling takes place, than the period of use of the dumpsite could be much longer.

3.3. Status of Project Preparation

The first phase of the implementation of the project already started and included the preparation works, the preparation of the project documentation and the site arrangement activities.

3.4. Technology Proposed

3.5. Ownership of Project Site

Municipality of Bjelovar

- 3.6. Specific Project Items
- 4. Project Effects and Interactions
- 4.1. Public's Expression of Interest
- 4.2. Environmental Impact Assessment
- 4.3. Sensitivity of Locality/Receptor
- **4.4.** Primary Effects of Project
- 5. Economic Project Justification
- **5.1.** Economic Project Benefits
- **5.2.** Economic Internal Rate of Return (EIRR)
- 6. Financial Viability
- **6.1.** Estimated Investment Cost
- **6.2.** Estimated Operational Cost
- **6.3.** Estimate of Revenues
- **6.4.** Financial Internal Rate of Return (FIRR)

Courses of funding	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan – central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant – central budget			
(8) Public grant – regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements			

The Municipal Dumpsite «Grginac» of City of Bjelovar

Date of first setting up: Date of latest upgrade:

Project Title The municipal dump site «Grginac» of city of Bjelovar

Responsible/Legal Body

Authority/Company Municipality of Bjelovar

Name

Address Gundulićeva 1, Bjelovar

Telephone +385 43 244922 **Fax** +385 43 244615

e-mail

Project Target The remedy of the municipal dump site «Grginac» of city of

Bjelovar.

Investment Costs 935 000 US\$

Status of Project

Ongoing/Planned Project, Emerging Concept Planned project

Language of Project

Documents

The municipal dump site «Grginac» of city of Bjelovar

2. Investor Details

2.1. Authority/Company

Name: Municipality of Bjelovar Address: Gundulićeva 1, Bjelovar

Telephone: +385 43 244922 Fax: +385 43 244615

E-mail:

2.2. Contact Persons

Mr. Mirko Čorba, B.Sc.

2.3. Advisor/Consultant

Mr. Danko Fundurulja

2.4. Legal/Financial Status

Local authority

2.5. Authority/Company Profile

Local authority

2.6. Planning/Implementing Extent/Capacity of the Investor

2.7. Institutions/Enterprises beside the Investor

3. Project Description

3.1. Project Outline

The project includes the remedy of the existing municipal dumpsite «Grginac» for city of Bjelovar. In order to obtain the goals of the project, the following activities are proposed: the building of impermeable layer around the dumpsite; the building of the drainage network; the closing of the dumpsite along with the monitoring and the maintenance.

3.2. Primary Needs for the Project

By taking these measures the negative impact on environment will be avoided.

3.3. Status of Project Preparation

The main design documentation for remedy of the dumpsite is already prepared.

3.4. Technology Proposed

3.5. Ownership of Project Site

Municipality of Bjelovar

3.6. Specific Project Items

4. Project Effects and Interactions

- 4.1. Public's Expression of Interest
- 4.2. Environmental Impact Assessment
- 4.3. Sensitivity of Locality/Receptor
- 4.4. Primary Effects of Project
- 5. Economic Project Justification
- 5.1. Economic Project Benefits
- **5.2.** Economic Internal Rate of Return (EIRR)
- 6. Financial Viability
- 6.1. Estimated Investment Cost
- **6.2.** Estimated Operational Cost
- **6.3.** Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

Courses of funding	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan – central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant – central budget			
(8) Public grant – regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements			

The Rehabilitation of the Municipal Dumpsite of City of Daruvar

Date of first setting up: Date of latest upgrade:

Project Title The rehabilitation of the municipal dump site of city of Daruvar

Responsible/Legal Body

Authority/Company «Darkom» d.o.o. Daruvar

Name

Address Kozarčeva 19, Daruvar

Telephone +385 43 331044 **Fax** +385 43 331357

e-mail

Project Target The rehabilitation of the existing dump site of city of Daruvar

Investment Costs 1 200 000 US\$

Status of Project

Ongoing/Planned Project, **Emerging Concept**

Planned project

Language of Project

Documents

The rehabilitation of the municipal dump site of city of Daruvar

2. Investor Details

2.1. Authority/Company

Name: «Darkom» d.o.o. Daruvar; Bjelovarsko-bilogorska County; Municipality of

Daruvar

Address: Kozarčeva 19, Daruvar

Telephone: +385 43 331044 Fax: +385 43 331357

E-mail:

2.2. Contact Persons

Mr. Željko Slivar

2.3. Advisor/Consultant

2.4. Legal/Financial Status

The company with limited responsibilities

2.5. Authority/Company Profile

Sanitary activities;

2.6. Planning/Implementing Extent/Capacity of the Investor

2.7. Institutions/Enterprises beside the Investor

3. Project Description

3.1. Project Outline

The project includes the survey of existing situation and the rehabilitation activities on the location Cerik western from city of Daruvar

3.2. Primary Needs for the Project

The appropriate deposition of solid waste for whole city of Daruvar.

3.3. Status of Project Preparation

The feasibility study is finished and location license is issued.

3.4. Technology Proposed

In-site and on-site

3.5. Ownership of Project Site

State ownership

3.6. Specific Project Items

4. Project Effects and Interactions

4.1. Public's Expression of Interest

4.2. Environmental Impact Assessment

The environmental impact assessment has to be carried out.

4.3. Sensitivity of Locality/Receptor

- 4.4. Primary Effects of Project
- 5. Economic Project Justification
- **5.1.** Economic Project Benefits
- **5.2.** Economic Internal Rate of Return (EIRR)
- 6. Financial Viability
- **6.1.** Estimated Investment Cost
- **6.2.** Estimated Operational Cost
- **6.3.** Estimate of Revenues
- **6.4.** Financial Internal Rate of Return (FIRR)

Courses of funding	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan – central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant – central budget			
(8) Public grant – regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements			

The Rehabilitation of the Municipal Dumpsite of City of Nova Gradiška

Date of first setting up: Date of latest upgrade:

Project Title The rehabilitation of the municipal dump site of city of Nova

Gradiška

Responsible/Legal Body

Authority/Company Municipality of Nova Gradiška

Name Mr. Zrinko Gres

Address Kralja Tomislava 1, Nova Gradiška

Telephone +385 35 361655 **Fax** +385 35 361679

e-mail

Project Target The solution for the dump site for solid waste in organized and

controlled manner

Investment Costs 95 000 US\$

Status of Project

Ongoing/Planned Project,

Emerging Concept

Planned project

Language of Project

Documents

Croatian

The rehabilitation of the municipal dump site of city of Nova Gradiška

2. Investor Details

2.1. Authority/Company

Name: Municipality of Nova Gradiška

Address: Kralja Tomislava 1, Nova Gradiška

Telephone: +385 35 361655 Fax: +385 35 361679

E-mail:

2.2. Contact Persons

Mr. Zrinko Gres

2.3. Advisor/Consultant

2.4. Legal/Financial Status

Local authority

2.5. Authority/Company Profile

Local authority

2.6. Planning/Implementing Extent/Capacity of the Investor

2.7. Institutions/Enterprises beside the Investor

JP «Slavča»

3. Project Description

3.1. Project Outline

The project includes the rehabilitation of the existing dumpsite.

3.2. Primary Needs for the Project

The improvement of the state of environment.

3.3. Status of Project Preparat	ion
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3.4. Technology Proposed

3.5. Ownership of Project Site

Municipality of Nova Gradiška

3.6. Specific Project Items

4. Project Effects and Interactions

4.1. Public's Expression of Interest

There is a positive public opinion present about the project.

4.2. Environmental Impact Assessment

4.3. Sensitivity of Locality/Receptor

4.4. Primary Effects of Project

The project could be characterized as a project of regional level of importance.

5. Economic Project Justification

5.1. Economic Project Benefits

5.2. Economic Internal Rate of Return (EIRR)

6. Financial Viability

- **6.1.** Estimated Investment Cost
- **6.2.** Estimated Operational Cost
- **6.3.** Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

Courses of funding	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan – central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant – central budget			
(8) Public grant – regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements			

The Municipal Dumpsite of City of Oriovac

Date of first setting up: Date of latest upgrade:

Project Title The municipal dump site of city of Oriovac

Responsible/Legal Body

Authority/Company Municipality of Oriovac

Name Mr. Miro Haring

Address 35250 Oriovac

Telephone +385 35 431036

Fax

e-mail

Project Target The solution for the dump site for solid waste in organized and

controlled manner in order to protect the environment.

Investment Costs 44 000 US\$

Status of Project

Ongoing/Planned Project, Emerging Concept Planned project

Language of Project

Documents

Croatian

The municipal dump site of city of Oriovac

2. Investor Details

2.1. Authority/Company

Name: Municipality of Oriovac

Address: 35250 Oriovac Telephone: +385 35 431036

Fax: E-mail:

2.2. Contact Persons

Mr. Miro Haring

2.3. Advisor/Consultant

2.4. Legal/Financial Status

Local authority

2.5. Authority/Company Profile

Local authority

2.6. Planning/Implementing Extent/Capacity of the Investor

2.7. Institutions/Enterprises beside the Investor

3. Project Description

3.1. Project Outline

The project includes the building of the dumpsite along with appropriate facilities.

3.2. Primary Needs for the Project

The improvement of the state of environment.

3.3. Status of Project Preparation

3.4. Technology Proposed

3.5. Ownership of Project Site

State ownership

3.6. Specific Project Items

4. Project Effects and Interactions

4.1. Public's Expression of Interest

There is a positive public opinion present about the project.

4.2. Environmental Impact Assessment

4.3. Sensitivity of Locality/Receptor

4.4 Primary Effects of Project

The project could be characterized as a project of regional level of importance.

5. Economic Project Justification

- 5.1. Economic Project Benefits
- **5.2.** Economic Internal Rate of Return (EIRR)
- 6. Financial Viability
- **6.1.** Estimated Investment Cost
- **6.2.** Estimated Operational Cost
- **6.3.** Estimate of Revenues
- **6.4.** Financial Internal Rate of Return (FIRR)

Sources of funding	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan – central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant – central budget			
(8) Public grant – regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements			

The Dumpsite of Požeška kotlina Region

Date of first setting up: Date of latest upgrade:

Project Title The dump site of Požeška kotlina region

Responsible/Legal Body

Authority/Company «Tekija» d.o.o. Požega

Name Mr. Ante Kolić, B.Sc.

Address Vodovodna 1, Požega

 Telephone
 +385 34 272711

 Fax
 +385 34 272714

 e-mail
 tekija@po.tel.hr

Project Target The deposition of waste under sanitary conditions for 2 cities and 6

municipalities according to the existing legislation.

Investment Costs 1 557 000 US\$

Status of Project

Ongoing/Planned Project, Emerging Concept Planned project

Language of Project

Documents

Croatian

The dump site of Požeška kotlina region

2. Investor Details

2.1. Authority/Company

Name: «Tekija» d.o.o. Požega Address: Vodovodna 1, Požega

Telephone: +385 34 272711
Fax: +385 34 272714
E-mail: tekija@po.tel.hr

2.2. Contact Persons

Mr. Milan Beslić, B.Sc.; Ms. Jasna Relić, B.Sc.

2.3. Advisor/Consultant

2.4. Legal/Financial Status

The company with limited responsibilities

2.5. Authority/Company Profile

Sanitary activities;

2.6. Planning/Implementing Extent/Capacity of the Investor

2.7. Institutions/Enterprises beside the Investor

The cities of Požega and Pleternica and the municipalities of Kutjevo, Velika, Jakšić, Kaptol, Brestovac, and Čaglin

3. Project Description

3.1. Project Outline

The project includes the building of municipal dump site for 70 000 inhabitants on the area of 100 000 square meters.

3.2. Primary Needs for the Project

The appropriate deposition of solid waste according to the existing legislative in order to protect the environment and sources of drinking water (groundwater).

3.3. Status of Project Preparation

The project documentation has to be adopted to the existing acts.

3.4. Technology Proposed

Sorting and deposition of waste on appropriate manner.

3.5. Ownership of Project Site

City of Požega

3.6. Specific Project Items

Good location of project site with the thickness of impermeable layer of 15 meters.

4. Project Effects and Interactions

4.1. Public's Expression of Interest

There is a big public's expression about the project.

4.2. Environmental Impact Assessment

4.3. Sensitivity of Locality/Receptor

4.4. Primary Effects of Project

5. Economic Project Justification

5.1. Economic Project Benefits

5.2. Economic Internal Rate of Return (EIRR)

6. Financial Viability

6.1. Estimated Investment Cost

6.2. Estimated Operational Cost

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

Courses of funding	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan – central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant – central budget			
(8) Public grant – regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements			

The Building of the Dumpsite «Pustošije» The Dum

Date of first setting up: Date of latest upgrade: **Project Title** The building of the dump site «Pustošije» Čakovec Responsible/Legal Body **Authority/Company** Name **Address Telephone Fax** e-mail **Project Target** The deposition of waste for whole Međimurska county according to the existing legislation **Investment Costs Status of Project** Ongoing/Planned Project, Planned project **Emerging Concept**

Croatian

Language of Project

Documents

The building of the dump site «Pustošije» Čakovec

2. Investor Details

2.1. Authority/Company

Name:

Address:

Telephone:

Fax:

E-mail:

- 2.2. Contact Persons
- 2.3. Advisor/Consultant
- 2.4. Legal/Financial Status
- 2.5. Authority/Company Profile
- 2.6. Planning/Implementing Extent/Capacity of the Investor
- 2.7. Institutions/Enterprises beside the Investor

3. Project Description

3.1. Project Outline

The project includes the building of municipal dump site for whole Međimurska county according to the existing ecological normatives and legislation.

3.2. Primary Needs for the Project

The appropriate deposition of solid waste in order to protect the environment.

3.3. Status of Project Preparation

The procedure for environmental impact assessment is carried out.

3.4. Technology Proposed

Deposition of waste on sanitary manner.

3.5. Ownership of Project Site

Mainly state ownership and one smaller part is private ownership.

3.6. Specific Project Items

4. Project Effects and Interactions

4.1. Public's Expression of Interest

4.2. Environmental Impact Assessment

The environmental impact assessment study exists.

- 4.3. Sensitivity of Locality/Receptor
- 4.4. Primary Effects of Project
- 5. Economic Project Justification
- 5.1. Economic Project Benefits
- **5.2.** Economic Internal Rate of Return (EIRR)
- 6. Financial Viability
- **6.1.** Estimated Investment Cost
- **6.2.** Estimated Operational Cost
- **6.3.** Estimate of Revenues
- **6.4.** Financial Internal Rate of Return (FIRR)

Courses of funding	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan – central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant – central budget			
(8) Public grant – regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements			

The Municipal Dump Site of City of Slatina

Date of first setting up: Date of latest upgrade:

Project Title The municipal dump site of city of Slatina

Responsible/Legal Body

Authority/Company Municipality of Slatina

Name

Address Trg Svetog Josipa 10, Slatina

Telephone +385 33 551109 **Fax** +385 33 551143

e-mail

Project Target The rehabilitation and closing of the existing dumpsite and

building of new dump site on another location.

Investment Costs 206 000 US\$

Status of Project

Ongoing/Planned Project, Emerging Concept Planned project

Language of Project

Documents

Croatian

The municipal dump site of city of Slatina

2. Investor Details

2.1. Authority/Company

Name: Municipality of Slatina

Address: Trg Svetog Josipa 10, Slatina

Telephone: +385 33 551109 Fax: +385 33 551143

E-mail:

2.2. Contact Persons

Mr. Tomislav Vukelić.

2.3. Advisor/Consultant

2.4. Legal/Financial Status

Local authority

2.5. Authority/Company Profile

Local authority

2.6. Planning/Implementing Extent/Capacity of the Investor

2.7. Institutions/Enterprises beside the Investor

«Komrad» d.o.o. Slatina

3. Project Description

3.1. Project Outline

The project includes the following: the analysis of present situation; the definition of measures in order to achieve the permanent deposition of the solid waste of city of Slatina.

3.2. Primary Needs for the Project

The improvement of the state of environment. Moreover, by taking these measures the deposition of the dump will be secured for longer period.

3.3. Status of Project Preparation

The study for the project is accepted by local authorities. The next step involves the acquisition of location license and preparation of documentation for the project.

3.4. Technology Proposed

3.5. Ownership of Project Site

Municipality of Slatina

3.6. Specific Project Items

High investment costs.

4. Project Effects and Interactions

4.1. Public's Expression of Interest

There is big public's interest present about the project.

- 4.2. Environmental Impact Assessment
- 4.3. Sensitivity of Locality/Receptor
- 4.4. Primary Effects of Project
- 5. Economic Project Justification
- 5.1. Economic Project Benefits
- **5.2.** Economic Internal Rate of Return (EIRR)
- 6. Financial Viability
- **6.1.** Estimated Investment Cost
- **6.2.** Estimated Operational Cost
- **6.3.** Estimate of Revenues
- **6.4.** Financial Internal Rate of Return (FIRR)

Courses of funding	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan – central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant – central budget			
(8) Public grant – regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements			

The Rehabilitation of the Municipal Dumpsite of City of Orahovica

Date of first setting up: Date of latest upgrade:

Project Title The rehabilitation of the municipal dump site of city of Orahovica

Responsible/Legal Body

Authority/Company IPZ Uniprojekt MCF Zagreb

Name Mr. Danko Fundurulja

Address Babonićeva 17, Zagreb

Telephone

Fax

e-mail

Project Target The rehabilitation of the existing dumpsite of city of Orahovica

with the continuity of deposition of waste under sanitary

conditions.

Investment Costs 752 000 US\$

Status of Project

Ongoing/Planned Project,

Emerging Concept

Planned project

Language of Project

Documents

Croatian

The rehabilitation of the municipal dump site of city of Orahovica

2. Investor Details

2.1. Authority/Company

Name: «Papuk» d.o.o. Orahovica Address: V. Nazora 14, Orahovica

Telephone: +385 33 673217 Fax: +385 33 673506

E-mail:

2.2. Contact Persons

Mr. Vjekoslav Abičić, director

2.3. Advisor/Consultant

2.4. Legal/Financial Status

The company with limited responsibilities

2.5. Authority/Company Profile

Sanitary activities;

2.6. Planning/Implementing Extent/Capacity of the Investor

2.7. Institutions/Enterprises beside the Investor

Municipality of Orahovica

3. Project Description

3.1. Project Outline

The project includes the survey of existing situation and the rehabilitation activities on the location TUK Orahovica

3.2. Primary Needs for the Project

The appropriate deposition of solid waste for city of Orahovica in order to protect the environment.

3.3. Status of Project Preparation

The feasibility study is finished.

3.4. Technology Proposed

In-site and on-site

3.5. Ownership of Project Site

Municipality of Orahovica

- 3.6. Specific Project Items
- 4. Project Effects and Interactions
- 4.1. Public's Expression of Interest
- 4.2. Environmental Impact Assessment
- 4.3. Sensitivity of Locality /Receptor
- 4.4. Primary Effects of Project
- 5. Economic Project Justification
- 5.1. Economic Project Benefits
- **5.2.** Economic Internal Rate of Return (EIRR)
- 6. Financial Viability
- **6.1.** Estimated Investment Cost
- **6.2.** Estimated Operational Cost
- **6.3.** Estimate of Revenues
- **6.4.** Financial Internal Rate of Return (FIRR)

Sources of funding	Secured	Requested	Non - secured
	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan – central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant – central budget			
(8) Public grant – regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds /requirements			

Regional Landfill for Eastern Slavonija

Date of first setting up: Date of latest upgrade:

Project Title Regional landfill for Eastern Slavonija

Responsible/Legal Body City Government

City of Osijek

Authority/Company Self-government unit

Name Zlatko Benašić, dipl. ing.

Osijek, F. Kuhača 9 **Address**

+385 31 207038 **Telephone** Fax +385 31 207038

e-mail zlatko.benasic@os.tel.hr

Project Target Disposal of municipal waste on the territory of Eastern Slavonia

with the aim to protect the waters in territory drained by the Drava

and the Danube river-basin

Investment Costs 27.000.000,00 US\$

Status of Project

Ongoing/Planned Project, **Emerging Concept**

Planned project

an agreement on joint disposal of municipal waste was signed among the following towns: Osijek, Vinkovci, Vukovar, Đakovo and Županja

preparations for an international prequalification procedure

with the aim to privatize municipal economy

Language of Project

Documents

English

1. Project Title

Regional landfill for Eastern Slavonija

2. Investor Details

City of Osijek

City Government

2.1. Authority/Company

Self-government unit

Name: Zlatko Benašić, dipl. ing.

Address: Osijek, F. Kuhača 9

Telephone: +385 31 228 228 /272

Fax: +385 31 207 038

E-mail: zlatko.benasic@os.tel.hr

2.2. Contact Persons

Mira Lizačić-Vidaković, dipl. ing.

2.3. Advisor/Consultant

Mira Lizačić-Vidaković, dipl. ing.

2.4. Legal/Financial Status

Self-government unit

2.5. Authority/Company Profile

Self-government unit

2.6. Planning/Implementing Extent/Capacity of the Investor

None

2.7. Institutions/Enterprises beside the Investor

IPZ Uniprojekt MFC, Zagreb and international consultants

3. Project Description

3.1. Project Outline

Municipal waste management in five towns of Eastern Slavonia doesn't satisfy the fundamental legal standards. This condition can be attributed to the war. A joint landfill offers more acceptable economic and ecological conditions of municipal waste disposal. Transfer stations will enable same conditions of waste disposal for all beneficiaries.

3.2. Primary Needs for the Project

- rational management of municipal waste for the benefit of the final beneficiary
- ensuring the financing of the project by a model of private-public partnership
- ensuring of ecological standards of environmental impact

3.3. Status of Project Preparation

Preparations for an international prequalification procedure are underway.

3.4. Technology Proposed

3.5. Ownership of Project Site

3.6. Specific Project Items

Model of private-public partnership

4. Project Effects and Interactions

Minimum costs for the final beneficiary

4.1. Public's Expression of Interest

Big

4.2. Environmental Impact Assessment

Not made

4.3. Sensitivity of Locality/Receptor

Unknown

4.4. Primary Effects of Project

A substantial reduction of number of «wild» landfills and increase of secondary raw material exploitation possibilities.

5. Economic Project Justification

- **5.1.** Economic Project Benefits
- **5.2.** Economic Internal Rate of Return (EIRR)
- 6. Financial Viability
- **6.1.** Estimated Investment Cost
- **6.2.** Estimated Operational Cost
- **6.3.** Estimate of Revenues
- **6.4.** Financial Internal Rate of Return (FIRR)

6.5. Anticipated/Proposed Funding Scheme

Connect of funding	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan – central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant – central budget			
(8) Public grant – regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements			

Center for Pre-processing and Storage of Dangerous Waste for Osijek-Baranja County

Date of first setting up: Date of latest upgrade:

Project Title Center for pre-processing and storage of dangerous waste for

Osijek-Baranja county

Responsible/Legal Body City Government

City of Osijek

Authority/Company Self-government unit

Name Zlatko Benašić, dipl. ing.

Address Osijek, F. Kuhača 9

Telephone +385 31 207038

Fax +385 31 207038

e-mail zlatko.benasic@os.tel.hr

Project Target Establishment of system of disposal of dangerous waste in the

Republic of Croatia.

Construction of objects for pre-processing, storage and disposal of

dangerous waste.

Investment Costs 1.770.000,00 US\$

Status of Project

Ongoing/Planned Project,

Emerging Concept

Planned project

- a study on environmental impact and a conceptual design has

been made

Language of Project

Documents

1. Project Title

Center for pre-processing and storage of dangerous waste for Osijek-Baranja County

2. Investor Details

City of Osijek

City Government

2.1. Authority/Company

Self-government unit

Name: Zlatko Benašić, dipl. ing.

Address: Osijek, F. Kuhača 9

Telephone: +385 31 228 228 / 272

Fax: +385 31 207 038

E-mail: zlatko.benasic@os.tel.hr

2.2. Contact Persons

Mira Lizačić-Vidaković, dipl. ing.

2.3. Advisor/Consultant

Mira Lizaèiæ-Vidakoviæ, dipl. ing.

2.4. Legal/Financial Status

Self-government unit

2.5. Authority/Company Profile

Self-government unit

2.6. Planning/Implementing Extent/Capacity of the Investor

None

2.7. Institutions/Enterprises beside the Investor

IPZ Uniprojekt MFC, Zagreb and APO - Agency for Special Waste, Zagreb

3. Project Description

3.1. Project Outline

Technological waste is a segment of the waste management strategy. Current management of technological waste in the Republic of Croatia and the City of Osijek is alarming. Uncontrolled disposal of dangerous waste together with municipal waste on inadequate landfills or into the water is a frightful fact of environment pollution. Fundamental problems with regard to technological waste are the following: what must be done with newly produced quantities of dangerous waste and what must be done with the old waste, which represents a great danger for human health and environment. Construction of the plant for processing, recycling and disposal of dangerous waste will enable a safe way of disposal of this type of waste.

3.2. Primary Needs for the Project

Establishment of the system of disposal of dangerous waste in the Republic of Croatia.

Construction of objects for pre-processing, storage and disposal of dangerous waste.

3.3. Status of Project Preparation

Since there are no such objects in the Republic of Croatia, the City of Osijek has, together with APO – Agency for special waste and DUZPO – State Directorate for Protection of Environment, started looking for solutions to this problem. It collected information on quantities and types of dangerous technological waste and had the study done. The siege of Osijek surroundings during the war was a reason to try to solve this problems.

3.4. Technology Proposed

Physical and chemical processing of dangerous waste

3.5. Ownership of Project Site

City-owned

3.6. Specific Project Items

A great part of Eastern Slavonia was exposed to war and destruction and a long period of presence of different armies. Therefore, information of quantities and composition of dangerous waste is completely unknown, which makes the solution of this problem even more urgent.

4. Project Effects and Interactions

Methodical management of dangerous waste ensures a safer protection of environment and human health.

4.1. Public's Expression of Interest

Big

4.2. Environmental Impact Assessment

Made

4.3. Sensitivity of Locality/Receptor

Construction of the center according to the proposed conceptual design will protect this territory and beneficiaries from any kind of pollution from this object.

4.4. Primary Effects of Project

Reduction of environment pollution, methodical disposal of waste and prevention of pollution of ground waters.

- 5. Economic Project Justification
- 5.1. Economic Project Benefits
- **5.2.** Economic Internal Rate of Return (EIRR)
- 6. Financial Viability
- 6.1. Estimated Investment Cost
- 6.2. Estimated Operational Cost
- **6.3.** Estimate of Revenues
- **6.4.** Financial Internal Rate of Return (FIRR)

6.5. Anticipated/Proposed Funding Scheme

Courses of funding	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan – central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant – central budget			
(8) Public grant – regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements			

The DumupsimtofPžžsšiDtkrica Velika»

Date of first setting up: Date of latest upgrade:

Project Title Temporary landfill «Lončarica Velika»

Responsible/Legal Body City Government

City of Osijek

Authority/Company Self-government unit

Name Zlatko Benašić, dipl. ing.

Address Osijek, F. Kuhača 9

Telephone +385 31 207038 Fax +385 31 207038

zlatko.benasic@os.tel.hr e-mail

Disposal of municipal waste of the city of Osijek to construction of **Project Target**

the regional landfill

Investment Costs 2.700.000,00 US\$

Status of Project

Ongoing/Planned Project,

Emerging Concept

The land for landfill has been bought

Project documents have been developed

Disposal of waste has been going on since 1996 in phases

Language of Project

Documents

English

1. Project Title

Temporary landfill «Lončarica Velika»

2. Investor Details

City of Osijek

City Government

2.1. Authority/Company

Self-government unit

Name: Zlatko Benašić, dipl. ing.

Address: Osijek, F. Kuhača 9

Telephone: +385 31 228 228 / 272

Fax: +385 31 207 028

E-mail: zlatko.benasic@os.tel.hr

2.2. Contact Persons

Mira Lizačić-Vidaković, dipl. ing.

2.3. Advisor/Consultant

Mira Lizačić-Vidaković, dipl. ing.

2.4. Legal/Financial Status

Self-government unit

2.5. Authority/Company Profile

Self-government

2.6. Planning/Implementing Extent/Capacity of the Investor

None

2.7. Institutions/Enterprises beside the Investor

IPZ Uniprojekt MFX, Zagreb and «Unikom» Co, Osijek

3. Project Description

3.1. Project Outline

During the war and siege of Osijek's territory from three sides, the City has found the only possible solution at the city territory (Lončarica Velika). It has developed the required documents on the basis of research work, the construction of landfill started and in October 1995 the waste disposal started.

3.2. Primary Needs for the Project

Temporary disposal of waste on the basis of the respect of legal provisions on protection of environment.

3.3. Status of Project Preparation

- the land for the landfill has been bought
- project and technical documentation has been developed
- the landfill was constructed up to the second phase
- the landfill is being used regularly
- the capacity will meet the requirements until the end of 1999

3.4. Technology Proposed

Disposal, compressing and covering

3.5. Ownership of Project Site

City owned

3.6. Specific Project Items

Lack of the space for expansion

4. Project Effects and Interactions

Methodical waste management until the permanent solution

4.1. Public's Expression of Interest

Big.

4.2. Environmental Impact Assessment

Finished

4.3. Sensitivity of Locality/Receptor

System for collection of strain waters has been only partly constructed (drainage system)

4.4. Primary Effects of Project

Environment pollution will be reduced, waste will be disposed methodically and pollution of ground waters will be prevented.

5. Economic Project Justification

- **5.1.** Economic Project Benefits
- **5.2.** Economic Internal Rate of Return (EIRR)
- 6. Financial Viability
- **6.1.** Estimated Investment Cost
- 6.2. Estimated Operational Cost
- **6.3.** Estimate of Revenues
- **6.4.** Financial Internal Rate of Return (FIRR)

6.5. Anticipated/Proposed Funding Scheme

Common of funding	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan – central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant – central budget			
(8) Public grant – regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements			

Improvement of Sanitary Conditions of Landfill in Nemetin - Sarvaš

Date of first setting up: Date of latest upgrade:

Project Title Improvement of sanitary Conditions of landfill in Nemetin -

Sarvaš

Responsible/Legal Body City Government

City of Osijek

Authority/Company Self-government unit

Name Zlatko Benašić, dipl. ing.

Address Osijek, F. Kuhača 9

Telephone +385 31 207038 **Fax** +385 33 207038

e-mail zlatko.benasic@os.tel.hr

Project Target Improvement of sanitary conditions of the landfill, which was

abandoned in 1989, must be made in accordance with the Law on waste management. Since this landfill was inaccessible during the war, it is necessary to determine required measures of

improvement through research work.

Investment Costs Research work – 50 000 USD

Covering+furnishing with green = 70 USD/m^2

Status of Project

Ongoing/Planned Project,

Emerging Concept

Planned project

Language of Project

Documents

1. Project Title

Improvement of sanitary conditions of landfill in Nemetin - Sarvaš

2. Investor Details

City of Osijek

City Government

2.1. Authority/Company

Self-government unit

Name: Zlatko Benašić, dipl. ing.

Address: Osijek, F. Kuhača 9

Telephone: +385 31 228 228 /272

Fax: +385 31 207 038

E-mail: zlatko.benasic@os.tel.hr

2.2. Contact Persons

Mira Lizačić-Vidaković, dipl. ing.

2.3. Advisor/Consultant

Mira Lizaèiæ-Vidakoviæ, dipl. ing.

2.4. Legal/Financial Status

Self-government unit

2.5. Authority/Company Profile

Self-government unit

2.6. Planning/Implementing Extent/Capacity of the Investor

None

2.7. Institutions/Enterprises beside the Investor

IPZ Uniprojekt MFC, Zagreb and local construction firms

3. Project Description

3.1. Project Outline

The city landfill has been used for twenty years. In 1989 a new site was chosen and the existing one required improvement. Project of improvement of sanitary conditions should provide the data on necessary measures of improvement on the basis of research work. Since any kind of research work during the war was impossible, these measures must be carried out in the frames of this project. The project should also provide assessment of the possible impact on the river Drava as well as on the ground waters.

3.2. Primary Needs for the Project

Sanitary conditions of the landfill, which was abandoned in 1989, must be improved according to the Law on waste management. Since this landfill was inaccessible during the war, it is necessary to determine required measures of improvement through research work.

3.3. Status of Project Preparation

Project is still in the phase of planning, because the site has been inaccessible.

3.4. Technology Proposed

3.5. Ownership of Project Site

City owned

3.6. Specific Project Items

4. Project Effects and Interactions

Prevention of pollution to the river Drava and improvement of sanitary conditions on the basis of legal regulatory rules of the Republic of Croatia

4.1. Public's Expression of Interest

Big

4.2 Environmental Impact Assessment

4.3. Sensitivity of Locality/Receptor

Note: It is possible that the pollution is very likely but it will become known as soon as the research work has been done.

4.4. Primary Effects of Project

Environment pollution will be reduced and pollution of the river Drava and ground waters will be prevented.

5. Economic Project Justification

- **5.1.** Economic Project Benefits
- **5.2.** Economic Internal Rate of Return (EIRR)
- 6. Financial Viability
- **6.1.** Estimated Investment Cost
- 6.2. Estimated Operational Cost
- **6.3.** Estimate of Revenues
- **6.4.** Financial Internal Rate of Return (FIRR)

6.5. Anticipated/Proposed Funding Scheme

Courses of funding	Secured	Requested	Non - secured
Sources of funding	(Currency)	(Currency)	(Currency)
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan – central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant – central budget			
(8) Public grant – regional budget			
(9) Public grant – municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements			

Reconstruction Project of East Slavonia, Baranja and West Srijem

Date of first setting up: Date of latest upgrade:

Project Title Reconstruction project of East Slavonia, Baranja and West Srijem

Responsible/Legal Body Republic of Croatia

Authority/Company Government of Republic of Croatia

Name Ministry of Finances of Republic of Croatia

Address Zagreb, Katančićeva 5

Telephone +385 1 86221215

Fax +385 1 86221833

e-mail

Project Target The reconstruction of water management facilities for flood

protection along with removal of mine fields; The reconstruction of sewage network and wastewater treatment plant of Vinkovci;

Purchase of equipment for National Park Kopački Rit.

Investment Costs 512 640 000 kuna (80 100 000 US\$)

Status of Project

Ongoing/Planned Project,

Emerging Concept

Ongoing project

Language of Project

Documents

Croatian/English

1. Project Title

Reconstruction project of East Slavonia, Baranja and West Srijem

2. Investor Details

2.1. Authority/Company

Name: Croatian Waters

Address: Zagreb, Ulica grada Vukovara 220

Telephone: +385 1 6110522 Fax: +385 1 6151793

E-mail:

2.2. Contact Persons

Mr. Stjepan Šturlan, Bsc., general manager

2.3. Advisor/Consultant

Mr. Miroslav Steinbauer, MSc.

2.4. Legal/Financial Status

2.5. Authority/Company Profile

The legal body for water management with 650 employees

2.6. Planning/Implementing Extent/Capacity of the Investor

The capacities of the Investor are sufficient for carrying out the project.

2.7. Institutions/Enterprises beside the Investor

Croatian Center for Mines, Sisak and Public Enterprise «Kopački Rit».

3. Project Description

3.1. Project Outline

The project includes the reconstruction of drainage network on the total area of 155 000 ha (2/3 in the Baranja region and the rest in the Eastern Slavonia), and the reconstruction of dykes along Drava and Danube river (cca. 100 kilometers) together with 15 pumping stations. Also it is necessary to carry out the removal of the minefields in these areas. Furthermore, the project covers the reconstruction of the sewage network and the wastewater treatment plant of city of Vinkovci and the purchase of equipment for laboratory for the Nature park Kopački Rit.

3.2. Primary Needs for the Project

The emergency reconstruction of the water management facilities in the area of Baranja, Eastern Slavonia and Western Srijem will allow a fast return of refugees in these part of Croatia and use of the arable land to the full extent for agriculture. By reconstructing the sewage network and the wastewater treatment plant of Vinkovci the further heavy pollution of Bosut River will be stopped and the quality of river Bosut will be with accordance to EU standards. The implementation of the part of the project concerning the Nature park Kopački Rit will allow the preservation of world famous wetlands and also it will contribute to development of tourism in that area.

3.3. Status of Project Preparation

Project will be implemented within 5 years.

3.4. Technology Proposed

The contracts for the removal of the minefields will be arranged together with construction works, whereas the biding will be in accordance with the regulations of the World Bank.

3.5. Ownership of Project Site

The dykes along the rivers Drava and Danube, the pumping stations and main drainage network is property of Croatian Waters, whereas the wastewater treatment plant of Vinkovci is property of the company «Vinkovački vodovod i kanalizacija».

3.6. Specific Project Items

This is a water management project, but the schedule highly depends on the conduction of removal of mines.

4. Project Effects and Interactions

4.1. Public's Expression of Interest

There is a big public interest about the project.

4.2. Environmental Impact Assessment

The reduction of pollution in the river Bosut near Vinkovci will be significant and it is expected that the quality of the river Bosut will be in accordance with the EU standards.

4.3. Sensitivity of Locality/Receptor

The Nature park Kopački Rit is highly sensitive area, which must be preserved.

4.4. Primary Effects of Project

The flood protection of the area of 155 000 ha, the reduction of pollution of river Bosut and the appropriate management of Nature park Kopački Rit.

5. Economic Project Justification

The economic project justification was carried out by the UN-FAO mission from Rome in December 1997.

5.1. Economic Project Benefits

By establishing the pre-war condition of dykes (return period 100 years, as it was prescribed by common Croatia-Hungary Commission for water management) the normal human activity in this region will be secured. The improvement of drainage network will allow the normal agricultural production on 30 000 hectares and new 9 000 hectares of arable land will be available.

The reconstruction of sewage network and the wastewater treatment plant of Vinkovci will improve the quality of river Bosut and it will also allow the use of river for different purposes such as irrigation, recreation, fishery, etc.

The removal of mines in these areas will contribute to the further economical development of the area of Baranja, Eastern Slavonia and West Srijem.

5.2. Economic Internal Rate of Return (EIRR)

Economic internal rate of return for the investment in flood protection is 16 percent, whereas the netto present value is 15 000 000 US\$.

The EIRR for Baranja region is 20 percent and netto present value is 12 000 000 US\$.

The EIRR for Eastern Slavonia region is 12 percent and netto present value is 2 000 000 US\$.

6. Financial Viability

6.1. Estimated Investment Cost

The contract with the World Bank is signed on 384 256 000 kuna or 60 040 000 US\$ (exchange rate 1US\$=6,4 kuna) during 1998.

The allocation of the costs is as follows:

- flood protection 36 320 000 US\$

- removal of mines 6 700 000 US\$

- sewage system Vinkovci 15 800 000 US\$

- Nature park Kopački Rit 2 220 000 US\$

6.2. Estimated Operational Cost

The operational costs for 1998 are estimated at 128 390 000 kuna or 20 060 000 US\$.

The allocation of the costs is as follows:

- flood protection 13 300 000 US\$

- removal of mines

sewage system VinkovciNature park Kopački Rit2 260 000 US\$4 500 000 US\$

6.3. Estimate of Revenues

8 years

6.4. Financial Internal Rate of Return (FIRR)

The financial internal rate of return has been calculated.

6.5. Anticipated/Proposed Funding Scheme

Compagat from disc	Secured	Requested	Non - secured
Sources of funding	Kuna	Kuna	Kuna
(1) Equity of project owner			
(2) National Environmental Fund			
(3) Water Management Fund	27 494 400		
(4) Public loan – central budget			
(5) Public loan – regional budget			
(6) Public loan – municipal budget			
(7) Public grant – central budget	93 005 600		
(8) Public grant – regional budget			
(9) Public grant – municipal budget			
(10) International loan	259 852 000 (World Bank IBRD 4351/HR)		/HR)
(11) International grant	3 904 000 (GEF)		
(12) Commercial bank loan			
(13) Other sources			
Total funds/requirements	384 256 000		

Preservation and Rehabilitation of the Drava River Basin Wetlands in Baranja Region

Date of first setting up: Date of latest upgrade:

Project Title Preservation and rehabilitation of the Drava River basin wetlands

in Baranja region

Responsible/Legal Body

Authority/Company

Name Kopački Rit Nature Park Management Office, Croatia¹

Danube-Drava National Park Directorate, Hungary²

Croatian Waters, VGO Osijek, Croatia³

Address Ulica Petefi Šandora 35, HR-31327 Bilje, Croatia¹

Tettye square 9, H-7625 Pecs, Hungary² Splavarska 2a, HR-31000 Osijek, Croatia³

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Project Target Joint transboundary pollution reduction and nature conservation

programme preparation and implementation on the left bank of the Drava River in Baranja region near Kopački Rit Nature Park in order to protect globally significant biodiversitiy of the Kopački rit Nature Park as a highly threatened regional and global wetland ecosystem. Project outcomes include rehabilitation of Biljski Rit (including Janči rit, Žadanj bara, Mađarska bara and Biljsko jezero) covering 1800 ha in order to introduce further protection of the globally significant

biodiversity of the Kopački Rit Nature Park.

Status of Project

Ongoing/Planned Project, Emerging Concept Emerging project

Language of Project

Documents

Croatian, partly English

1. Project Title

Preservation and rehabilitation of the Drava River basin wetlands in Baranja region

2. Investor Details

2.1. Authority/Company

Name: Kopački Rit Nature Park Management Office, Croatia¹

Croatian Waters, Zagreb, Croatia²

Address: Ulica Petefi Šandora 35, HR-31327 Bilje, Croatia¹

Ulica grada Vukuvara 220,HR-10000 Zagreb, Croatia²

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E-mail:

2.2. Contact Persons

Mr. Jožef Mikuška, PhD., Nature Park Kopački Rit Management Office

2.3. Advisor/Consultant

State Directorate for Nature Protection and Environment, Zagreb, Croatia, State Water Directorate, Zagreb

2.4. Legal/Financial Status

Public enterprise¹

Water management agency²

2.5. Authority/Company Profile

2.6. Planning/Implementing Extent/Capacity of the Investor

The investors have planning capacities.

2.7. Institutions/Enterprises beside the Investor

3. Project Description

3.1. Project Outline

Main target of the project is the rehabilitation of the Biljski rit (including Janči rit. Žadanj bara, Mađarska bara and Biljsko jezero covering 1800 ha. This will be done through restoration of former hydrological conditions in the Biljski rit and by the reduction of pollution coming from the point sources (pig and cattle farms) in the target area. Several alternative solutions exist, and as an one of them is the building of the reversible pumping station in the main Drava-Danube dike, but detailed study is required in order to find most appropriate solution. These activities will lead to the establishing of the "green corridor" between Drava and Danube floodplains in Baranja region. Moreover, one part of the Biljski rit will be open for the public for recreation and finally the protection of the globally significant biodiversity of Kopački Rit Nature Park will be conducted by applying these measures.

3.2. Primary Needs for the Project

Covering the area of about 17 700 hectares, the Kopački Rit Nature Park is one of the centers of Croatian biodiversity and the most important wetlands site along the Danube River in the Central Europe. Recognized for its regionally and globally significant biodiversity, the Nature Park was declared a Ramsar site on June 26, 1996.

Adjacent to Kopački Rit Nature park, along the Drava River are situated extensive floodplain forests covering an area of about 10 000 ha, as well as it's remaining wetlands e.g. Biljski rit covering 1800 ha. During the last 100 years at least half of the former Drava wetlands habitats were drained and converted to agriculture. The treats arising from the resumption of agriculture include uncontrolled access to land and discharge of wastewater from nutrient load into the remaining wetlands and the Danube and Drava rivers. Several point source pollution hot spots, associated with large-capacity pig and cattle farms in Baranja region are threatening persisting Baranja's wetlands in Drava River basin. Untreated fecal waters are drained through the Barbara canal into former course of the Drava River and through the system of canals they directly pass through the Kopački rit Nature park.

3.3. Status of Project Preparation

The Nature Park management plan is under preparation, as well as the detailed list of needed infrastructure for the project is under preparation.

3.4. Technology Proposed

Conventional water engineering technologies will be used.

3.5. Ownership of Project Site

3.6. Specific Project Items

Kopački Rit Nature Park surpasses one of the Ramsar norms (that it harbors at anyone time at least 1 % of the flyway population of a certain bird species) for at least ten species. Typical species of the reserve include: 30 pairs of the endangered European Black Stork, 20 breeding pairs of White-Tailed Sea Eagle, about 400 pairs of night herons, numerous Squacco Heron; a fairly stable

population of several hundred pairs of endangered and rapidly disappearing Ferruginous Duck and Whiskered Terns, about 5 pairs of Saker Falcon, 40 pairs of Little Egrets, hundreds of Spoonbills during migration and tens of thousands of Bean Geese. The reserve also is a habitat for rare mammal species auch as the Hamster, Otter, Wild Cat, Pine Marten and the Bilch. In addition, 44 species of fish and ten species of reptiles, including the endangered European Marsh Turtle, occur in the marches and lakes.

4. Project Effects and Interactions

4.1. Public's Expression of Interest

There has not been conducted specific survey of public interest regarding the project. However, it is assumed that public interest will be in favor of the project and any counter interest is not likely.

4.2. Environmental Impact Assessment

Not available. ESA needs to be prepared before the project implementation.

4.3. Sensitivity of Locality/Receptor

4.4. Primary Effects of Project

Locally, project will lead to restoration of 1800 ha of wetlands along the Drava River and establishment of "green corridor" between Drava and Danube floodplain in Baranja region. Also the protection of the globally significant biodiversity of the Kopački Rit Nature Park, a highly threatened regional and global wetland ecosystem will be further enhanced.

5. Economic Project Justification

5.1 Economic Project Benefits

5.2 Economic Internal Rate of Return (EIRR)

EIRR has not been calculated.

6. Financial Viability

6.1. Estimated Investment Cost

The investment cost has not been calculated because the study must be carried out in order to define the implementation of the best suitable solution.

6.2. Estimated Operational Cost

The operational cost has not been calculated because the study must be carried out in order to define the implementation of the best suitable solution.

6.3. Estimate of Revenues

6.4. Financial Internal Rate of Return (FIRR)

FIRR has not been calculated

6.5. Anticipated/Proposed Funding Scheme

Courses of funding	Secured	Requested	Non – secured
Sources of funding	(US\$)	(US\$)	(US\$)
(1) Equity of project owner ("Varkom")			
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan - central budget			
(5) Public loan - regional budget			
(6) Public loan - municipal budget			
(7) Public grant - central budget			
(8) Public grant - regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources (Croatian Waters)			
Total funds/requirements			

Project 67

The Reconstruction of the Wastewater Treatment Plant of City Varazdin

Date of first setting up: Date of latest upgrade:

Project Title The reconstruction of the wastewater treatment plant of city of

Varaždin

Responsible/Legal Body

Authority/Company The city of Varaždin

Name The department for sanitary activities and space planning

Address Trg slobode 12/II

Telephone +385 42 214 995

Fax +385 42 214 991

e-mail

Project Target The reconstruction of the WWTP of city of Varaždin in order to

reduce the pollution in Drava River

Investment Costs 12 000 000 US\$

Status of Project

Ongoing/Planned Project,

Emerging Concept

Ongoing project

Language of Project Croatian

Documents Summary in English

1. Project Title

The reconstruction of the wastewater treatment plant of city of Varaždin

2. Investor Details

2.1. Authority/Company

Name: JKP "Varkom" Varaždin Address: Trg Bana Jelačića 15 Telephone: +385 42 215 066 Fax: +385 42 214 290

E-mail:

2.2. Contact Persons

Mr. Robert Mukić, dipl. ing. stroj.

2.3. Advisor/Consultant

Prof. Dr. Laszlo Sipos, Faculty of Chemical Engineering and Technology

2.4. Legal/Financial Status

The company with increased responsibilities

2.5. Authority/Company Profile

Sanitary activities

2.6. Planning/Implementing Extent/Capacity of the Investor

2.7. Institutions/Enterprises beside the Investor

3. Project Description

3.1. Project Outline

For the city of Varaždin the mechanical-biological wastewater treatment plant is build along with the conditioning of the sludge. The designed capacity of the WWTP is 200 000 p.e. Nowadays, the proposed technology and capacity dose not give the expected result of the water treatment and therefore the reconstruction of the WWTP is required, especially the biological part of the WWTP.

3.2. Primary Needs for the Project

The aim of the project is to reduce the pollution of river Drava and to improve the water quality in the reservoir of Donja Dubrava hydroelectric power plant. Other benefits are the improvement of health conditions in the recreation area "Aquacity". All these measures will contribute to the further economic development of the city of Varaždin.

3.3. Status of Project Preparation

For the project all licenses are secured and the bidding for the project documentation is conducted in 1997.

3.4. Technology Proposed

Standard technology (mechanical-biological treatment with conditioning of the sludge) but with application of the aeration with small bubbles and with final conditioning of the sludge (dehydratization) along with possible commercialization of the sludge

3.5. Ownership of Project Site

JKP "Varkom" Varaždin

3.6. Specific Project Items

4. Project Effects and Interactions

4.1. Public's Expression of Interest

Nowadays the wastewater is treated only by mechanical treatment and the present situation is highly unsatisfactory. Therefore, there is a big public expression of interest in solving this problem.

4.2. Environmental Impact Assessment

4.3. Sensitivity of Locality/Receptor

The recipient for the threaded wastewater is river Drava, which is classified into second category of water quality.

4.4. Primary Effects of Project

The project could be characterized as a project of international level of importance. The main recipient is Drava River, which is the border between Croatia and Hungary. The expected reduction of BOD will be between 70 and 90 %, whereas the expected reduction of COD will be at least 70 percent. Nowadays the load of BOD is 1549 tones/year and the load of COD is 2669 tones/year. The implementation of the project will reduce the load of BOD up to 387 tones/year and COD up to 890 tones/year.

5. Economic Project Justification

5.1. Economic Project Benefits

As one of the economic project benefits, which can be considered as the decrease of the charges according to the principle "polluters pay". Moreover, the project will increase employment during the exploitation period.

5.2. Economic Internal Rate of Return (EIRR)

EIRR has not been calculated.

6. Financial Viability

6.1. Estimated Investment Cost

The investment costs are estimated at 12 000 000 US\$. The structure of the investment costs is the following:

- land	1 500 000 US\$
- civil works and equipment	10 000 000 US\$
- design and supervision	500 000 US\$

6.2. Estimated Operational Cost

There are real estimates of operational costs because the WWTP is already in function.

6.3. Estimate of Revenues

The revenues are estimated at 1 000 000 US\$ per year as it was in1996.

6.4. Financial Internal Rate of Return (FIRR)

FIRR has not been calculated

6.5. Anticipated/Proposed Funding Scheme

For 1999 the funding scheme is the following:

Courses of familians	Secured	Requested	Non – secured
Sources of funding	(US\$)	(US\$)	(US\$)
(1) Equity of project owner ("Varkom")		265 000	
(2) National Environmental Fund			
(3) Water Management Fund			
(4) Public loan - central budget			
(5) Public loan - regional budget			
(6) Public loan - municipal budget			
(7) Public grant - central budget			
(8) Public grant - regional budget			
(9) Public grant - municipal budget			
(10) International loan			
(11) International grant			
(12) Commercial bank loan			
(13) Other sources (Croatian Waters)		265 000	
Total funds/requirements		530 000	

Project 68

Building up the Lonjsko Polije Nature Park Information and Monitoring Center in the War-Damaged Town Jasenovak (Croatia)

Date of first setting up: Date of latest upgrade:

Project Title Building up the Lonjsko polje Nature park information and

monitoring center in the war-damaged town Jasenovac (Croatia)

Responsible/Legal Body

Authority/Company Lonjsko polje Nature park service

Name Goran Gugić, superintendent

Address Trg kralja Petra Svačića b.b.

HR-44324 Jasenovac

Croatia

Telephone +385 44 672080

Fax +385 44 672080

e-mail

Project Target Restore and convert the war damaged, unused office of the forest

service (or alternatively the completely destroyed historical monument "Kožara") in Jasenovac into Lonjsko polje Nature park information and monitoring center and equip it to provide requisite infrastructure and facilities for park-administration, visitor-information, education, monitoring and development of sustainable, traditional agriculture. More effective preservation of the Sava wetlands and economical benefits (especially in

agriculture and tourism) for the park region are expected.

State agency for nature conservation and environment, Sisak-Moslavina county and the community of Jasenovac are involved.

Investment Costs 719 250 US\$

Status of Project Proposal for assignment of the right to use (forest service-nature

park service) has been given to the State agency for nature conservation and environment, to refer it to the government. The community of Jasenovac (as the owner of the alternative building

"Kožara") has already agreed with assignment.

Language of Project

Documents

German, English

1. Project Title

Building up the Lonjsko polje Nature park information and monitoring center in the war-damaged town Jasenovac (Croatia)

2. Investor Details

2.1. Authority/Company

Name: Lonjsko polje Nature park service Address: Trg kralja Petra Svačića b.b.

44 324 Jasenovac

Croatia

Telephone: +385 44 672080 Fax: +385 44 672080

E-mail:

2.2. Contact Persons

Goran Gugić, superintendent

2.3. Advisor/Consultant

State Agency for nature conservation and environment, Zagreb

2.4. Legal/Financial Status

Nature park service is owned by the Republic of Croatia as a public institution. According to the Croatian law of nature conservation, legal status of the "Nature park"-category is the same as it for the "National park"-category.

2.5. Authority/Company Profile

Lonjsko polje Nature park service has been settled up in July 1998 and is based in Jasenovac. The service primarily has to protect, preserve and promote Lonjsko polje Nature park. Additional duties are: to manage scientific and applied research, to manage visiting, to promote sustainable traditional agriculture and architectural heritage and to produce and to adapt products of traditional agriculture. Currently, during the initial period, the service is completely financed by the national budget. It is planned to insure additional sources of income (i.e. from visiting, education, marketing of products with origin from Lonjsko polje Nature park). In 1999, a 2 000 000 kuna (i.e. cca. 300 000 US\$) budget is expected. Currently, the service has eight (full time) employees, in 1999 twenty seasonal employees are expected.

3. Project Description

3.1. Project Outline

Reconstructing the office of the Forest service (or alternatively the historic monument "Kožara") in Jasenovac, that has been devastated during the war, and converting it into the Lonjsko polje Nature park information and monitoring center. The center houses the head office of the park service, with its departments for interpretation (former canteen functions as lecture hall), for monitoring (with a laboratory) and for supporting traditional agriculture.

The Sisak-Moslavina county and the community of Jasenovac are very interested in the implementation of the center expecting economic benefits by developing tourism and agriculture, especially traditional live-stock-breeding. The inhabitants of the Nature park are forced to farm in a traditional way, because of about 50.000 ha of wood and pasture land are used as a retention area for flood control.

Jasenovac is located in the middle of the Nature park at the boundary with Bosnia and Herzegovina. For visitors it is the best get-at-able place (highway Zagreb-Slavonski Brod, railway station Jasenovac) within the park area. The community was occupied during the war, and is part of the current state program "areas of special national care".

3.2. Primary Needs for the Project

Within the Danube river basin, Lonjsko polje Nature park contains an unique land use system, that was typical for the whole region of Central Europe until the second half of the 19th century. The Lonjsko and Mokro polje are RAMSAR site and Important Bird Area (IBA). The park contains about 380 km² of riperian forest (the biggest complexes in Europe) and 120 km² of traditional pastureland. The park's wetlands are the biggest spawing areas for the carps in the whole of Danube river basin. There are two endangered autohtonous domestic breeds: the Posavina-horse (genetically very closed to Tarpan and Hucul) and the Turopolje pig. The Nature park service has to co-ordinate and to manage the land users (traditional agriculture, forestry, fisheries, hunting, flood and water control, tourism), to monitor the park area (air and water pollution, endangered species, etc) and to educate the public. The head office and its facilities would offer the needed essential infrastructure to realize those tasks.

3.3. Status of Project Preparation

The park service is working out a detailed list of needed infrastructure.

3.4. Technology Proposed

3.5. Ownership of Project Site

The community of Jasenovac (as the owner of the alternative building "Kožara") has already agreed with assignment.

3.6. Specific Project Items

4. Project Effects and Interactions

4.1. Public's Expression of Interest

Government agreed with the State agency's proposal that the Nature park service should be based in Jasenovac. The community itself is very interested to get the Nature park center in place. Currently, the service is provisionally located in rooms offered by the community. The Sisak-Moslavina county is also very interested in the implementation of the Nature park, because of the structural issues and problems of the region (i.e. landuse-conflicts between forestry, fisheries, agriculture, hunting, water control, nature conservation, etc.).

4.2. Environmental Impact Assessment

4.3. Sensitivity of Locality /Receptor

4.4. Primary Effects of Project

- on local level: economical development and employment in the by war devastated county through nature conservation
- > on national level: availability of needed infrastructure and facilities for setting up the Nature park service; improve the economical situation of one of the most undeveloped regions in Croatia; minimize air- and water- pollution through monitoring of water quality and biodiversity; minimize the existing conflicts between the land users
- on international level: protection and preservation of:
 - RAMSAR site
 - Important Bird area and Eurasian Waterfowl agreement
 - Main spawing area of the Danubian carps
 - traditional and sustainable land use system
 - traditional pasture land
 - biggest riperian forest complexes in Europe.

5. Economic Project Justification

5.1. Economic Project Benefits

About 200 000,00 kn (cca 30 600 US\$) could be saved by Nature park service in 1999.

5.2. Economic Internal Rate of Return (EIRR)

EIRR has not been calculated.

6. Financial Viability

6.1. Estimated Investment Cost

The investment costs are estimated at 719 000 US\$ (4 580 000 kuna).

The structure of the investment costs is the following:

-	reconstruction of the building	2 750 000 kuna
-	furniture (offices, lecture hall, laboratory)	500 000 kuna
-	equipment (hardware, projectors)	380 000 kuna
-	interpretation stuff	250 000 kuna
-	laboratory equipment (microscope, field measurement equipment, etc.)	700 000 kuna
TC	ΥΤΔΙ	4 580 000 kuna

TOTAL 4 580 000 kuna

6.2. Estimated Operational Cost

Estimate of Revenues 6.3

Financial Internal Rate of Return (FIRR) **6.4**

Proposed Funding Scheme 6.5

Sources of funding	1998	1999	2000	TOTAL
	(US\$)	(US\$)	(US\$)	(US\$)
Nature park service	28650	30600	30000	89250
Sisak-Moslavina county	10000	10000	10000	30000
International grant	0	306000	294000	600000
TOTAL	38650	346600	334000	719250