



Andrea Merla  
12/22/99 12:25 PM

Extn: 88198                      GEF

Subject: Danube PDF-B UNDP

Ramon,

UNDP will send you a formal submission for PDF-B together with the endorsements from countries. I did forward to you several of these letters some time ago, but I feel it would be better to have one complete formal submission. The proposal has already been reviewed and cleared, so all we need now is this formal submission so that I can sign the yellow sheet.

---

To: Gef Program Coordination/Service

# GLOBAL ENVIRONMENT FACILITY

## PROPOSAL FOR PDF BLOCK B GRANT

1. **Countries** Bosnia-Herzegovina, Bulgaria, Croatia, Czech Republic, Hungary, Moldova, Romania, Slovak Republic, Slovenia, Ukraine, Federal Republic of Yugoslavia
2. **Focal Area** International Waters
3. **Operational Programme** OP 8 - Waterbody-based
4. **Project Title** Strengthening Implementation of Nutrient Reduction Measures and Transboundary Cooperation in the Danube River Basin
5. **Total Cost** US\$530,000
6. **PDF Request** US\$350,000
7. **In-kind contribution** \$180,000: *(130,000 in kind from DRB countries i.e. 10,000 USD/country, 50,000 USD of ICPDR-expert assistance from the ICPDR staff)*
8. **Requesting Agency** United Nations Development Programme (UNDP) in association with the World Bank, UNEP and the International Commission for the Protection of the Danube River Basin (ICPDR)
9. **Executing Agency** United Nations Office for Project Services (UNOPS)  
**Block** PDF Block B
10. **Duration** 7 months (November 1999 – June 2000)

## 11. Introduction

PDF-B funds are requested to prepare a complete, comprehensive Danube Regional Project for submission to GEF Council in May, 2000. This PDF-B proposal has been prepared considering the Black Sea Basin Programmatic Strategy which includes the two regional projects, Danube and Black Sea, the World Bank/GEF Strategic Partnership Programme as well as cooperation with UNEP in developing a GPA protocol for Land Based Sources of Pollution.

The support is intended for those eleven Danube countries, which have signed the convention or which are preparing to adhere to the Convention and did collaborate in the frame of the Pollution Reduction Programme. It should be emphasized that the costs of preparing a project for 11 countries (plus Germany and Austria who receive no GEF assistance) are generally greater than for projects covering fewer countries (i.e. the Black Sea etc). Nevertheless, the total sum requested is actually smaller than what might be expected, given that a draft project brief for the Danube Regional project was prepared in the frame of the Danube River Basin Pollution Reduction Programme. Thus, the majority of the PDF B funds will be utilized to better prepare specific project components while a relatively small portion will be used to finalize the Project Brief itself (15,000 USD). UNOPS is proposed to be the executing agency for the PDF-B given its excellent performance in managing previous UNDP/GEF Danube projects.

The PDF B funding will serve to assure that a sound, well balanced Danube Regional Project Brief and Project Document will be prepared that is coherent with the Black Sea Regional Project as well as with the World Bank/GEF Strategic Partnership Programme. Both the PDF B work and the subsequent Danube Regional Project will strengthen the institutional and management capacities of the ICPDR Secretariat, particularly concerning legal and policy approaches to pollution reduction. This will help ensure that ICPDR will effectively address transboundary pollution in the long term when GEF assistance may no longer be available for the Danube region.

## 12. Project objective

The **long-term development objective** of the Danube Regional Project is: “to contribute to sustainable human development in the DRB by reinforcing the capacities of participating countries to develop effective regional cooperation and coordination mechanisms as well as to ensure the protection of international waters, and the sustainable management of natural resources and biodiversity.”

The **overall objective** is “to complement and support the activities of the ICPDR required to provide a regional approach to the development of national policies and legislation and to define priority actions for nutrient reduction and pollution control, with particular attention to transboundary effects within the DRB and the Black Sea basin.”

Taking into account the “Programmatic Strategy for Addressing Transboundary Environmental Problems in the Black Sea Basin,” the following **immediate objectives** respond to the overall development objective:

- (1) *Development of policies, legal instruments and measures for nutrient reduction as well as for exacting compliance.* Supporting the ICPDR and the DRB countries in developing appropriate policies and legal instruments to improve water management and water quality control with particular attention to toxic materials and nutrient reduction as well as in developing mechanisms for exacting compliance; assuring policy coherence to the “Global Program of Action on Control of Land Based Sources of Pollution”, as well as to the strategic goals of rehabilitating the Black Sea;
- (2) *Institutional Strengthening and Capacity Building:* Supporting the ICPDR and its Expert Groups to improve their institutional, administrative and technical capacities to assure basin wide harmonization of water quality regulatory standards including provisions for nutrient reduction to further develop the regional information system as well as mechanisms for transboundary pollution monitoring and evaluation considering EU respective regulations (WFD) and GEF IW M&E indicators;
- (3) *Awareness Raising and Reinforcement of NGO Participation* Supporting NGOs for professional, institutional, administrative and funding issues to raise their capacities for active participation in water management, transboundary pollution control and environmental protection;
- (4) *Development of transboundary strategies and concepts related to nutrient reduction and pollution control:* Supporting specific studies and projects of significant importance for leveraging political commitment for transboundary issues concerning water quality and water management of common interest to the Danube and the Black Sea countries.

### **13. Global significance**

With a length of 2,780 km, the Danube is the second largest river in Europe draining an area of 817,000 square km. This includes: all of Hungary; nearly all parts of Austria, Romania, Slovenia, Slovakia and FR Yugoslavia, significant parts of Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Moldova and small parts of Germany and Ukraine. The Danube River discharges into the Black Sea through a delta, which is the second largest natural wetland in Europe.

The Danube River Basin, with a total population of 81 million inhabitants (16 % of the population in Europe) is characterized by an aquatic ecosystem with numerous important wetlands and floodplains. The Danube ecosystem has a high environmental, as well as economic and social value. It supplies drinking water, and supports agriculture, industry, fishing, tourism and recreation, power generation, navigation, etc.

The Danube River Basin’s pollution problems are of local, national and transboundary (cross-border and global) significance. Of primary global importance, are the large nutrient loads carried across borders and ultimately to the Black Sea. However the Danube also suffers from high concentrations of BOD, COD, polycarbons, and toxics in various areas of the basin.

The Danube Pollution Reduction Programme has well documented the main causes and effects of water pollution in the Danube with a focus on the negative effects of nutrients. 51 "Significant Impact Areas (SIAs)" were identified in the DRB in the "Transboundary Analysis of Water Pollution in the DRB". The Black Sea Transboundary Analysis indicated that the Danube River, as the largest discharger to the Black Sea, is also, in terms of nutrients as well as other substances, its largest polluter.

#### **14. Background**

In the frame of the Environmental Programme for the Danube River Basin (EPDRB) international support has been provided to facilitate the development and the implementation of the Danube River Protection Convention (DRPC). From 1992-1999, the EU PHARE and TACIS programmes have provided 27,2 million US\$ (with activities scheduled to end October 2000) and UNDP/GEF, particularly through its Pollution Reduction Programme (June 1997 to June 1999), has provided 12,4 million US\$ as assistance for the EPDRB. This UNDP/GEF and EU assistance has supported the efforts of the Danube countries and of the Interim Commission for the Protection of the Danube River (ICPDR), to develop the necessary mechanisms for effective implementation of the Convention.

These mechanisms include the development of a regional *Strategic Action Plan (SAP)* in 1994 and revised in 1999, and the elaboration of a *Transboundary Analysis (1999)* to define causes and effects of transboundary pollution within the Danube River Basin and on the Black Sea. Based on the results of the Transboundary Analysis, the *Danube Pollution Reduction Programme*, an investment program with particular attention to nutrient reduction, was finalized in 1999. If implemented, the proposed measures would reduce the emissions from point as well as from non point sources of pollution, resulting in improved water quality. If the PRP is carried out, a 50 % reduction of Chemical Oxygen Demand (COD) emissions and 70 % of Biological Oxygen Demand (BOD) emissions and other toxic elements could be achieved. The PRP would further substantively contribute to nutrient reduction with reduction of Phosphorus by 27 % and of Nitrogen by 14 %. Taken altogether, the reductions would certainly reduce the transboundary effects within the Danube River Basin. Consequently the reduction of pollution would be expected to aid in the recovery of the Black Sea over time.

Efforts to coordinate Danube and Black Sea actions were supported in the Danube PRP with the establishment of the Danube-Black Sea Ad-hoc Technical Working Group. This group suggested in the frame of the Draft "Danube-Black Sea Memorandum of Understanding (MoU)" that: "the long term goal is for all Black Sea basin countries to take measures to reduce nutrient levels and other hazardous substances to such a level to permit Black Sea ecosystems to recover to similar conditions as those observed in the 1960s" and "as an intermediate goal, urgent control measures should be taken by all countries in the Black Sea basin, in order to avoid that discharges of nitrogen and phosphorus to the Black Sea exceed those levels observed in 1997".

The Danube River Protection Commission was signed in 1994 and ratified in 1998 coming into force Oct. 1998. The International Commission for the Protection of the Danube River (ICPDR) guides the implementation of the DRPC. A permanent Secretariat implements the work of the ICPDR.

## 15. Project description

The new GEF assistance to support the implementation of the “Programmatic Strategy for Addressing Transboundary Environmental Problems in the Black Sea Basin,” is expected to contain two complementary, interlinked components consisting of:

- (i) two Regional Projects being implemented by the Commissions of the Danube River Basin and the Black Sea respectively.
- (ii) The Strategic Partnership Programme to be a series of country related investment projects executed through the World Bank utilizing GEF financial support.

The regional components should provide assistance to the ICPDR and the Black Sea PIU to reinforce their activities in terms of policy/legislative reforms and enforcement of environmental regulations (with particular attention to nutrient reduction). The two Regional Projects will strengthen the capacity of the two Secretariats to:

- address nutrient reduction issues;
- facilitate nutrient reduction policy/legal reforms in the countries;
- facilitate public involvement in nutrient reduction;
- promote the utilization of economic instruments to implement policy aims,
- support development of indicators and monitoring of trends and compliance; and,
- provide the framework for the dissemination and replication of successful demonstration activities in the region.

The Danube Regional Project should further assure the efficient implementation of the Danube SAP, the PRP’s Investment Programme as well as the appropriate development and application of policies, strategies and legislation for transboundary pollution reduction at the national level. The proposed activities will thereby lead to progress towards reaching the objectives set out in the Danube-Black Sea MoU.

The components of the Danube Regional Project will be based on the draft Regional Project Brief that was prepared in the frame of the Danube PRP. The core elements and respective project components of the draft Regional Project Brief are listed below and will be fully developed in the frame of the PDF B assistance in line with the immediate objectives:

1. *Development of policies and legal instruments and measures for nutrient reduction,*
2. *Institutional Strengthening and Capacity Building for implementing nutrient reduction measures,*
3. *Awareness raising and reinforcement of NGO participation,*
4. *Development of transboundary strategies and concepts related to nutrient reduction and pollution control*

Based on the Draft Project Brief, the Danube Regional Project is expected to include the following activities on a country by country basis with a regional component to assure an integrated and coherent approach :

### **1.1 Development of policies and legal instruments and measures for exacting compliance**

- (i) Development of policy guidelines for river basin and water resources management
- (ii) Support of policy measures to operationalize actions for reduction of non-point source pollution from agriculture
- (iii) Development of pilot projects on reduction of nutrients and other harmful substances from agricultural point-sources via appropriate manure handling,
- (iv) Support for industrial reform and development of policies and legislation for “clean” industrial production,
- (v) Policy development to support wetlands rehabilitation activities as well as to address inappropriate landuse,
- (vi) Policy reform and legislative measures for applying economically and socially acceptable water and waste water tariffs,
- (vii) Support for the implementation of effective systems of fines and incentives,
- (viii) Support for the implementation of the “Memorandum of Understanding” between the ICPDR and the ICPBS relating to discharges of nutrients and hazardous substances to the Black Sea.
- (ix) Preparation of a Protocol to the Danube River Protection Convention in accordance with the Global Programme of Action (GPA), particularly with reference to the control of nutrients and eutrophication;

### **1.2 Institutional Strengthening and Capacity Building**

- (i) Further development of existing operational tools for Monitoring, Laboratory and Information Management Expert Group and for Emission Expert Group
  - improvement and further development of the “Danube Water Quality Model” and the “Nutrient Mass Balance Model”.
  - harmonization of water quality standards and quality assurance,
  - analysis of ecological characteristics and development of bio-indicators,
  - further development of database and emission inventory for point and non point sources of phosphorus and nitrogen,
  - identification of sources and amount of pollution for substances on the list of EU priority chemicals.
  - provision of additional laboratory and monitoring equipment to certain countries to be operational (Ukraine, Moldova) to the FR of Yugoslavia which is not yet integrated in the MLIM and EMIS systems.

- (ii) Establish scientific advisory committees to provide input of the science community to the various policy development and technical activities
- (iii) Support for development/reinforcement of ICPDR Information System (DANUBIS)
- (iv) Development of a monitoring and evaluation system of indicators for project monitoring and impact evaluation
- (v) Training and consultation workshops for resource management and pollution control with particular attention to nutrient reduction and transboundary issues.

### **1.3 Awareness raising and reinforcement of NGO participation**

- (i) Support for institutional development of NGOs including the Danube Environmental Forum and national NGOs;
- (ii) Applied awareness raising through community based “Small Grants Programme”;
- (iii) Support for the publication of “Danube Watch” and other publications.

### **1.4 Development of transboundary strategies and concepts related to nutrient reduction and pollution control**

- (i) Analysis of sediments in the Iron Gate reservoir for heavy metals and other dangerous substances,
- (ii) Evaluate nutrient removal capacities of priority DRB wetlands and flood plains, identify pilot projects and define and implement a monitoring program; develop optimal wetland management programs.
- (iii) Evaluation of environmental impacts on Significant Impact Areas (SIA) as defined in the Transboundary Analysis, as part of a sub-basin integrated approach
- (iv) Basin-wide feasibility study and consultation process on nutrient reduction credit banking
- (v) Recommendations for changes in legislation concerning phosphorus free detergent standards and preparation for implementation

## 16. Description of proposed PDF-B activities

The activities proposed for the PDF B funding include:

- 1) Establishment of interministerial coordination mechanisms between the ICPDR, the related national ministries and institutions should be accomplished during project preparation. This should begin by using the existing coordination structures of the ICPDR i.e. Heads of Delegations and experts from the ICPDR Expert Groups. Second, interministerial coordination mechanisms should be developed under the ICPDR framework in each country drawing on relevant sectors (such as was done in the Danube Pollution Reduction Programme's National Planning Workshops). These bodies will guide the development of national nutrient reduction plans during the full project. Each interministerial committee will be lead by the respective ICPDR Head of Delegation or Country Programme Coordinator.
- 2) Detailed assessment of existing and planned policies and legislation concerning nutrient reduction (including enforcement) in each country. This should include the identification of barriers to legal and policy reform and subsequent remedial measures that the Regional Project could help address. In the frame of the Danube Pollution Reduction Programme, a preliminary assessment was made (see Annex 1). This assessment will be strengthened and finalized in the frame of the PDF B activities. The final assessment will also include a review of how nutrient reduction policies, measures and activities can be integrated into the EU Accession process (EU Water Framework Directive etc.) to maximize the benefits of EU integration. The final study will be used to develop the policy support component of the Danube Regional Project. Determine costs of P-free detergent adoption process in each country to be implemented in main project.
- 3) Develop integrated river basin management approach concerning water quality and water quantity issues (water balance) and develop concepts for efficient use of water resources and restoration of ecosystems (wetlands). This approach should assure good management practices to avoid pollution and excessive use of fertilizers and pesticides in agriculture, livestock and forestry (reduction of N and P). Development of concepts for rational land use shall reduce run, better infiltration and extension or restoration of of natural water storage capacities (floodplains and wetlands). Good river basin management practices shall considerable reduce (30 to 50 %) of diffuse inputs of nutrients or improve nutrient absorption capacities.
- 4) Updating and filling in the gaps of essential information on priority hot spots, projects and measures and identifying key information gaps. The base of knowledge necessary for the preparation of the National Nutrient Reduction Plans should be improved where needed. Further gaps in scientific knowledge concerning: pollutants, evaluation of impacts and determination of cost effectiveness will be identified and project components prepared for possible inclusion into the Danube Regional Project. Particular attention shall be given to the determination of costs and methodology to identify priority areas of diffuse pollution (nitrogen and phosphorus) considering application of fertilizer input, improved drainage from cropland and inventory of livestock that will be part of the future project activities.

- 5) Development of a framework for the elaboration of national nutrient reduction plans (NNRPs). The framework for NNRPs should be agreed upon and prepared in cooperation with each DRB country. The NNRPs would then be completed and approved during the course of the Danube Regional Project.

The draft framework would include:

- Summaries of the existing situation in each country (nutrient inputs including sectoral contributions, largest hot spots, status of national legislation and policy);
- Analysis of national programmes of investments (national/baseline contributions, incremental/GEF, international borrowing, expected grants i.e. EU ISPA programme etc.), policy, legal and institutional reforms; and,
- Integration of monitoring and assessment programme into database infosystem to monitor indicators which should be developed considering GEF guidelines.

See **Annex 2** for drafts of the NNRP overview tables for each country.

- 6) Preparations for the development of a GPA Protocol for Land Based Sources of Pollution for the DRB countries. Establish contact and develop framework for cooperation with UNEP for developing the GPA protocol. Liaise with the World Bank concerning preparation for implementation of pilot projects for Land Based Sources of Pollution. Establish an ICPDR Ad-Hoc Working Group to work on these issues.
- 7) Preparation of the Danube Water Quality Model (DWQM) and the Danube Nutrient Mass Balance Model (NMBM) to monitor nutrient flows and nutrient reduction. The DWQM and the DNMBM were both developed during previous Danube assistance. Both models should be set-up in a way so as to be able to monitor and track inputs of nutrients as well as nutrient reduction (real and simulated).
- 8) Development of a preliminary set of Danube River Basin ecosystem indicators (bioindicators) to demonstrate stress reduction and environmental status indicators framework. Indicator monitoring and assessment activities, which are eligible under GEF criteria, will be identified and considered for funding under the Danube Regional Project
- 9) Evaluation of the results of previous public awareness activities (small grants programme etc.) and based on the results, design appropriate public awareness and civil society involvement activities that will serve to facilitate broad stakeholder (public, NGO's, private sector) involvement in and awareness of basin-wide nutrient reduction activities. Activities should promote the dissemination and replication of successful nutrient reduction activities. Determine composition and cost of scientific advisory committee.
- 10) Evaluation of previous NGO activities, such as the Danube Environment Forum (DEF) and the Small Grants Programme. Develop project components in the Danube Regional project to strengthen Danube NGOs' abilities to support and facilitate nutrient reduction projects and measures in the Danube River Basin.
- 11) Supporting the Further Development and Finalization of the Memorandum of Understanding between UNDP and the ICPDR outlining responsibilities for executing the Regional Project (ICPDR as executing agency).

- 12) Undertaking training activities to build the capacity of the ICPDR Secretariat, develop a comprehensive capacity building programme and evaluate the development needs of the ICPDR Expert Groups. Training activities to strengthen environmental management capacities of the ICPDR Secretariat and the national focal points will be carried out. Training should also include information on appropriate nutrient reduction policies, strategies and measures as well as the determination of incremental cost. On the basis of the results, develop a capacity building programme for the ICPDR to be implemented during the Regional Project. Additionally the further development needs for the ICPDR Expert Groups should be identified and developed as components of the ICPDR Regional Project.
- 13) Organization of a Regional Consultation Meeting with Danube River Basin Country representatives and other pertinent participants (GEF IA's, GEF Secretariat, regional development banks and other relevant agencies etc.) to discuss and agree framework for National Nutrient Reduction Plans (NNRPs). The workshops will also provide a review of:
- Existing and planned nutrient reduction policies and legislation (results of policy review);
  - GEF and donor activities which support the identified Black Sea basin-wide programmatic approach;
  - proposed coordination arrangements between the two UNDP led Regional Projects and the World Bank-GEF Strategic Partnership;
  - Draft Regional Project Documents for the Danube and the Black Sea and the World Bank-GEF Strategic Partnership Programme.
- 14) Establishment of Danube-Black Sea project advisory board between ICPDR Secretariat and the Black Sea PIU as a follow-up activity to the ad-hoc working group that developed the current draft Danube-Black Sea Memorandum of Understanding (MoU). The advisory board will first work to ensure consistency between the Danube and the Black Sea regional projects. It will then meet on a regular basis throughout the course of the two regional projects to share experiences as well as to assure a coordinated approach to implementation. It should also plan and guide the further development and final agreement of the Danube-Black Sea Memorandum of Understanding.
- 15) Coordination with UNDP Country Offices in mainstreaming nutrient reduction issues into planned and ongoing UNDP country and regional programmes (e.g. policy and legislative reforms, awareness raising, institutional reform, etc.), taking advantage of UNDP-supported fora, such as Agenda 21 Committees, National Sustainable Development Committees and other inter-sectoral bodies. Secure UNDP co-financing commitments.
- 16) Improvement of linkages with international financial institutions and donors to assure participation in Regional Project: Necessary linkages with international organizations such as the World Bank, EBRD, EU (ISPA, PHARE, TACIS, etc.) and bilateral i.e. USAID etc. will be strengthened to increase participation in implementation activities as well as to enhance the leveraging of additional financing. Efforts will be undertaken to integrate the Danube River Basin into the PPC process as well as to maximize Danube projects being included for support under the EU ISPA programme etc.

- 17) Participation in the Black Sea Basin Stocktaking Meeting, to assure appropriate coordination between regional projects as well as to adequately present Danube River Basin country concerns.
- 18) Completion of the Danube regional project preparation process; draft the final versions of the GEF Project Brief and Project Document . Liase with the World Bank, EBRD, UNDP, and UNEP to assist, where needed, in the preparation of other programme components such as the World Bank/GEF Strategic Partnership initiative etc. Work to integrate interests and concerns of participating countries and obtain necessary national level support.

Organize a meeting to be held in February 2000 to ensure that the emerging Regional Projects are complementary and adequately respond to the Black Sea Basin Programmatic strategy. This should be done in the frame of the Danube-Black Sea Advisory Board which will be established in task 14. This advisory board should ensure that the cooperation between the ICPDR Secretariat, the Black SEA PIU, the World Bank and UNDP will be intensified during the PDF-B activities to help make the project preparation process transparent as well as to ascertain that all programme components (regional projects and the Strategic Partnership programme), are integrated and complementary.

## **17. PDF Block B Outputs**

The following outputs are expected from the proposed PDF Block B activities:

- 1) National inter-ministerial coordination mechanisms are put in place which will guide national efforts to develop and implement nutrient reduction programmes.
- 2) A detailed assessment of existing national policies, legislation and regulations relating to nutrient removal as well as gaps and/or legal hindrances to action are available. Necessary steps to be taken regarding legal, policy and regulatory reform and project components to help address appropriate policies and measures for pollution reduction are identified.
- 3) A concept for integrated river basin management approach concerning water quality and water quantity issues (water balance) is developed and mechanisms for efficient use of water resources and restoration of ecosystems (wetlands) are defined.
- 4) Improved basis of knowledge on hot spots and other sources of pollution is available and potential measures are defined. Priority areas of diffuse sources of pollution (N+P) are identified and an inventory is available concerning major agricultural and livestock activities (use of fertilizer and drainage systems). Key issues are defined and project components are prepared as appropriate.
- 5) A framework for the elaboration of national nutrient reduction plans (NNRPs) is existing.
- 6) The development of a GPA for LBS for the DRB are conceptualized and preliminary work for a feasibility study on the use of nutrient trading markets is done.
- 7) Appropriate elements of DWQM and DNMBM established for monitoring of nutrient inputs and removal are conceptualized.
- 8) A preliminary system of ecosystem indicators (bioindicators) is developed.
- 9) Previous public awareness activities are evaluated and new public awareness components focussing on raising public awareness of nutrient reduction are prepared.

- 10) Previous NGO activities are evaluated as a way to identify appropriate interventions for improving NGO involvement and effectiveness in stimulating and supporting nutrient reduction activities in the future (small grants programme, DEF etc).
- 11) Memorandum of Understanding is completed facilitating the execution of the Danube Regional Project between UNDP and the ICPDR.
- 12) Training activities are carried out for ICPDR and National Focal Points, the capacity building programme for ICPDR in Regional Project is planned and the needs of the ICPDR expert groups for future support are identified.
- 13) Regional Consultation Meeting is held concerning NNRPs and agreement on framework.
- 14) Danube-Black Sea Advisory Board is established.
- 15) Appropriate linkages to UNDP offices are made, and GEF Danube regional activities are appropriately integrated into national and regional UNDP activities.
- 16) Stronger linkages to international financial organizations are made and process for participating in PPC and ISPA is established.
- 17) Consultation meetings with the Black Sea PIU are organized to ensure consistency of approach.
- 18) Completed versions of the Danube River Basin Project Brief and the Project Document with necessary national approvals are available.

## **18. Eligibility**

The proposal is eligible under the GEF Operational Programme Number 8 “Waterbody-based Operational Programme”. The transboundary, regional and global effects presented in Section 12 have highlighted the Danube Regional Project’s eligibility according to GEF criteria.

The Danube Regional Project will help the Danube countries to utilize the full range of technical, economic, financial, regulatory and institutional measures in order to make operable sustainable development strategies for international waters and in particular to address transboundary pollution problems.

## **19. National level support**

The Danube River Basin Regional Project is of national as well as of regional priority and it is consistent with national environmental policies. Central and downstream Danube countries are actually preparing their accession to the European Union and are therefore committed to applying European water directives and guidelines for pollution reduction with particular attention to the EU-Nitrate directives. The riparian countries have demonstrated their support and commitment by their participation and cooperation in different activities in the framework of the ICPDR; and by their active participation in the GEF Pollution Reduction Programme including the TDA, the SAP and the PRP itself. The subsequent approval of these key instruments by the ICPDR as well as national requests for GEF assistance to help address serious transboundary environmental problems in the Danube River, further demonstrates national level support.

## **20. Justification-Global benefit**

*Regional Benefits.* The PDF grant will help to strengthen the capacity and reinforce the structures of the ICPDR, the primary institution for fostering regional cooperation in the Danube River Basin. Both the PDF B as well as the Danube Regional Project itself will serve to develop appropriate policies and actions to reduce transboundary pollution, especially nutrients. The project will further serve to prepare the countries for accession to the European Union providing impetus to sustainable development in countries in transition.

*Global benefits.* By improving the ability of both countries and regional structures, namely the ICPDR, to address and remediate primary sources of transboundary pollution, the Regional Project will provide the global benefit of reducing negative transboundary impacts in particular on the Black Sea.. The development of nutrient reduction policies and strategies and the framework for NNRPs at the regional level will ensure a coordinated approach to developing a Danube River Basin wide nutrient reduction programme. Further global benefits to be achieved by the programme include:

- Support for countries involved in the EU Accession process (EU Accession in turn improves the chances of regional cooperation!);
- Improved basis for resolving regional environmental conflicts;
- Development of an harmonized approach which could be duplicated in other international waters projects;
- Increased recognition of the national actions needed to meet regional objectives.

## **21. Timetable**

PDF B activities are planned to start in November 1999 and are to be completed by June 2000. The Danube Regional Project will be presented to the GEF Council in May 2000.

## 22. Budget

Activity	Description	Cost(\$US)
1	The establishment of interministerial coordination mechanisms between the ICPDR, the related country ministries and institutions should be accomplished during project preparation in the 11 participating countries.	50,000
2	Detailed assessment of existing and planned policies and legislation concerning nutrient reduction (including enforcement) in each country.	30,000
3	Development of a concept for integrated river basin management approach concerning water quality and water quantity issues (water balance) and of mechanisms for efficient use of water resources and restoration of ecosystems (wetlands).	15,000
4	Updating and filling in the gaps of essential information on priority hot spots, projects and measures	10,000
5	Development of a framework for the elaboration of national nutrient reduction plans (NNRPs)	15,000
6	Preparation for the development of GPA Protocol for the DRB countries	15,000
7	Preparation of the Danube Water Quality Model (DWQM) and the Danube Nutrient Mass Balance Model (NMBM) to monitor nutrient reduction.	10,000
8	Development of a preliminary set of Danube River Basin ecosystem indicators (bioindicators)	10,000
9	Evaluation of the results of previous public awareness activities (small grants programme etc.)	10,000
10	Evaluation of previous NGO activities, such as the Danube Environment Forum (DEF) and the Small Grants Programme	5,000
11	Supporting of the Further Development and Finalization of the Memorandum of Understanding between UNDP and the ICPDR	5,000
12	Undertaking of training activities to build the capacity of the ICPDR Secretariat	25,000
13	Organization of a Regional Consultation meeting.	50,000
14	Establishment of Danube-Black Sea project advisory board	5,000
15	Coordination with UNDP Country Offices in mainstreaming nutrient reduction issues	10,000
16	Development of linkages with international financial institutions and donors to assure participation in Regional Project	10,000
17	Participation in the Black Sea Basin Stocktaking Meeting	3,000
18	Completion of the Danube regional project preparation process; draft the final versions of the GEF Project Brief and Project Document .	10,000
	ICPDR travel, coordination with GEF Implementing Agencies and GEF Secretariat	20,000
	Miscellaneous (ICPDR office expenses = copying, communications, consumables, etc.)	16,000
	<i>Sub-total</i>	324,000,000
	Project Support Services (8%)	26,000
	<b>TOTAL in USD</b>	<b>350,000</b>

# **ANNEXES**

**ANNEX 1    Draft of Country Overview Tables**

**ANNEX 2    Working Paper on Policies for pollution  
Reduction with Particular Attention to  
Nutrient Reduction**



# **ANNEX 1**

## **Draft of Country Overview Tables**



## Overview of Existing Situation

Country	Emissions from Monitored Point Sources (t/y) *												Estimated Emissions (t/y)								
	Municipal			Industrial			Agricultural			Total			Diffuse Sources			Point Sources			Total		
	N	P	N	N	P	N	N	P	N	N	P	N	N	P	N	N	P	N	N	P	N
Germany	13,13 6.0	521.0	790.0	82.0	0.0	0.0	13,92 6.0	603.0	1,247	100,0 00.0	5,800 .0	20,00 0.0	1,200 .0	120, 000.	7,00 0.0						
Austria	14,49 9.4	1,218 .9	690.0	28.8	0.0	0.0	15,18 9.4	1,247 .7	72,00	4,600	24,00	2,200	96,0 00.0	6,80 0.0							
Czech Republic	2,704 .7	444.0	236.0	99.9	0.0	0.0	2,940 .7	543.9	19,00	800.0	13,00	2,600	32,0 00.0	3,40 0.0							
Slovakia	5,554 .0	330.1	421.7	0.0	0.0	0.0	5,975 .7	330.1	40,00	2,600	14,00	3,000	54,0 00.0	5,60 0.0							
Hungary	7,162 .0	920.0	2,220	51.1	0.0	0.0	9,382 .2	971.1	163,00	7,800	19,00	5,400	82,0 00.0	13,2 00.0							
Slovenia	2,483 .3	526.3	0.0	0.0	0.0	2,483 .3	526.3	12,00	1,300	12,00	1,500	24,0 00.0	2,80 0.0								
Croatia	6,209 .0	1,499	525.1	13.0	12.0	6,746 .1	1,569	27,00	2,700	8,000	1,400	35,0 00.0	4,10 0.0								
Bosnia- Herzegovina	3,131 .1	929.9	0.0	0.0	0.0	3,131 .1	929.9	29,00	1,900	8,000	3,200	37,0 00.0	5,10 0.0								
Yugoslavia**	13,94 0.0	3,690	2,100	4,770	855.7	16,89 5.7	8,743	74,00	7,900	32,00	9,800	106, 000.	17,7 00.0								
Bulgaria	10,62 2.0	2,868	1,628	26.8	0.0	12,25 0.7	2,894	16,00	2,500	18,00	3,600	34,0 00.0	6,10 0.0								
Romania	24,97 4.2	4,598	11,98	82.0	6,233 .7	43,19 1.8	4,704	157,0	15,60	74,00	12,00	231, 000.	27,6 00.0								

													0	
Moldova	283.9	36.4	0.0	0.0	0.0	0.0	283.9	36.4	12,000.0	2,000.0	1,000.0	200.0	13,000.0	2,200.0
Ukraine	886.3	269.3	0.0	0.0	0.0	0.0	886.3	269.3	31,000.0	4,600.0	3,000.0	1,100.0	34,000.0	5,700.0
<b>Total Danube Countries</b>	<b>105,586.0</b>	<b>17,851.7</b>	<b>20,595.6</b>	<b>5,153.6</b>	<b>7,101.4</b>	<b>363.7</b>	<b>133,283.0</b>	<b>23,368.9</b>	<b>652,000.0</b>	<b>60,100.0</b>	<b>246,000.0</b>	<b>47,200.0</b>	<b>898,000.0</b>	<b>107,300.0</b>

\* source: EMIS List - Emission Inventory - Danube River Basin, Municipal and Industrial Discharges, October 1998

\*\* source: National Review 1998 - Yugoslavia

## Action - Pollution Reduction Programme

Country	Expected Pollution Reduction (t/y)										Costs (mil US\$)									
	Municipal		Industrial		Agricultural		Wetlands		Total		Total Investments					Incremental				
	N	P	N	P	N	P	N	P	N	P	Muni c.	Indus tr.	Agric	Wetl.	Total	Muni c.	Indus tr.	Agric	Wetl.	Total
Germany	4,409.0	13.0	635.0	40.0	0.0	0.0	211.0	21.0	5,255.0	74.0	100.6	6.3	0.0	126.6	233.5	90.5	1.3	0.0	84.6	176.4
Austria	4,040.0	404.0	470.0	0.0	0.0	0.0	165.0	17.0	4,675.0	421.0	576.1	81.2	0.0	42.9	700.2	518.5	16.2	0.0	9.9	544.6
Czech Republic	942.1	114.8	40.0	4.0	159.0	16.0	520.0	52.0	1,661.1	186.8	105.6	3.4	31.2	70.6	210.8	93.1	1.8	2.3	31.2	128.4
Slovakia	1,791.6	311.9	0.0	0.0	0.0	0.0	113.0	11.0	1,904.6	322.9	104.0	74.6	0.0	9.0	187.6	44.6	21.3	0.0	1.1	67.0
Hungary	1,107.0	410.0	420.0	6.0	0.0	0.0	4,163.0	416.0	5,690.0	832.0	90.0	57.5	0.0	312.8	460.3	52.7	13.3	0.0	21.4	87.4
Slovenia	4,372	972.0	635.0	40.0	822.0	185.0	0.0	0.0	5,829	1,197	280.4	6.3	7.0	0.0	293.	93.1	1.3	1.4	0.0	95.7

	.0								.0	.0					7					
Croatia	1,764	259.0	0.0	0.0	7.0	4.2	4,887	489.0	6,658	752.2	729.2	5.5	0.1	175.	910.	198.	1.6	0.0	28.6	229.
	.0						.0		.0					2	1	9				
Bosnia-Herzegovina	3,168	474.0	0.0	0.0	2,705	602.0	2,000	200.0	7,873	1,276	222.1	47.6	14.9	80.0	364.	13.4	15.4	4.5	20.0	53.2
	.0				.0		.0		.0					6						
Yugoslavia	2,598	3,388	682.0	4,118	603.0	226.0	3,200	320.0	7,083	8,052	680.9	78.5	19.8	123.	902.	160.	4.5	3.6	27.5	196.
	.0	.0		.0			.0		.0	.0				7	9	6				2
Bulgaria	2,879	1,594	480.0	65.0	0.0	0.0	1,864	186.5	5,223	1,845	198.7	96.9	0.0	22.4	318.	59.6	46.0	0.0	3.7	109.
	.0	.0					.0		.0	.5				0						4
Romania	10,80	3,329	1,685	168.1	1,400	0.9	8,404	840.0	22,29	4,338	359.9	254.7	39.6	100.	755.	260.	64.2	10.6	16.8	352.
	1.8	.0	.0		.6		.0		1.4	.0				9	1	8				4
Moldova	479.4	0.0	0.0	0.0	0.0	0.0	1,980	199.0	2,459	199.0	54.0	38.0	45.5	23.8	161.	2.7	7.6	0.6	4.0	14.9
							.0		.4						3					
Ukraine	418.0	78.6	0.0	37.5	0.0	0.0	2,365	237.0	2,783	353.1	64.1	11.4	0.9	28.4	104.	15.7	0.8	0.2	4.7	21.4
							.0		.0					7						
<b>Total Danube Countries</b>	<b>38,76</b>	<b>11,34</b>	<b>5,047</b>	<b>4,478</b>	<b>5,696</b>	<b>1,034</b>	<b>29,87</b>	<b>2,988</b>	<b>79,38</b>	<b>19,84</b>	<b>3,565</b>	<b>761.8</b>	<b>159.</b>	<b>1,11</b>	<b>5,60</b>	<b>1,60</b>	<b>195.</b>	<b>23.1</b>	<b>253.</b>	<b>2,07</b>
	<b>9.9</b>	<b>8.3</b>	<b>.0</b>	<b>.6</b>	<b>.6</b>	<b>.1</b>	<b>2.0</b>	<b>.5</b>	<b>5.5</b>	<b>9.5</b>	<b>.6</b>		<b>0</b>	<b>6.1</b>	<b>2.5</b>	<b>4.2</b>	<b>1</b>		<b>5</b>	<b>6.0</b>

**COUNTRY: GERMANY**

**Existing Situation**

**Action - Pollution Reduction Programme**

	Sector	Nutrient Load		Project / Hot Spot	Expected Reduction			Costs		Time frame	Financial status	
		Emission Source / Hot Spot	N		P	N	P	Total Investments	Incremental			Baseline
			t/y		t/y							
Mun	MUENCHEN I	3,501.2	78.2	Munchen I - Isar	2,704.0	3.0	28.6	25.7	2.9			
	MUENCHEN II - GUT MARIENHOF	1,559.3	21.1	Munchen II - Isar	1,150.0		20.0	18.0	2.0			
	ZV STARNBERGER SEE SITZ STARNBERG	211.8	4.5	Zweckverband Starnberger See - Isar	152.0		22.9	20.6	2.3			
	ZV OBERE ILLER SITZ SONTHOFEN	205.9	10.1	Zweckverband Obere Iller, Sonthofen	145.0	5.0	7.4	6.7	0.7			
	Leutkirch	120.5	2.3	Leutkirch - Eschach, Iller	64.0		4.6	4.1	0.5			
	ZV Reinhaltung des Chiemsee s. Prien	104.8	3.2	Zweckverband Chiemsee - Inn	68.0		5.1	4.6	0.5			
	AZV Oberes Laucherttal	39.8	2.2	Abwasserzweckverband Oberes Laucherttal	16.0		2.3	2.1	0.2			
				Mergelstetten - Brenz	110.0	5.0	9.7	8.7	1.0			
	<b>subtotal</b>	<b>5,743.3</b>	<b>121.7</b>	<b>subtotal</b>	<b>4,409.0</b>	<b>13.0</b>	<b>100.6</b>	<b>90.5</b>	<b>10.1</b>			
	Others	7,392.7	399.3	Others	0.0	0.0	0.0	0.0	0.0			
	<b>Total Municipalities</b>	<b>13,136.0</b>	<b>521.0</b>	<b>Total Municipalities</b>	<b>4,409.0</b>	<b>13.0</b>	<b>100.6</b>	<b>90.5</b>	<b>10.1</b>			
Ind.	Nitrochemie Aschau GmbH	260.0	45.0	WNC - Nitrochemie GmbH Aschau - Inn	245.0	40.0	5.7	1.1	4.6			
	Wacker Chemie GmbH	380.0	15.0									
				ESSO AG Ingolstadt - Donau	390.0		0.6	0.1	0.5			
	<b>Subtotal</b>	<b>640.0</b>	<b>60.0</b>	<b>Subtotal</b>	<b>635.0</b>	<b>40.0</b>	<b>6.3</b>	<b>1.3</b>	<b>5.0</b>			
	Others	150.0	22.0	Others	0.0	0.0	0.0	0.0	0.0			
	<b>Total Industry</b>	<b>790.0</b>	<b>82.0</b>	<b>Total Industry</b>	<b>635.0</b>	<b>40.0</b>	<b>6.3</b>	<b>1.3</b>	<b>5.0</b>			
Agr.												
	<b>Subtotal</b>	<b>0.0</b>	<b>0.0</b>	<b>Subtotal</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>			

Others	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total Agriculture</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
Wetland									
Floodplains next to Ingolstadt			113.0	11.0	101.3	78.8	22.5		
Mouth of Isar			98.0	10.0	25.4	5.9	19.5		
<b>Subtotal</b>			<b>211.0</b>	<b>21.0</b>	<b>126.6</b>	<b>84.6</b>	<b>42.0</b>		
Others			0.0	0.0	0.0	0.0	0.0		
<b>Total Wetlands</b>			<b>211.0</b>	<b>21.0</b>	<b>126.6</b>	<b>84.6</b>	<b>42.0</b>		

Emissions from Monitored Point Sources*	13,926.	603.0							
<b>Total Pollution Reduction - Pollution Reduction Programme</b>			5,255.0	74.0	233.5	176.4	57.1		

Estimated Emissions from Diffuse Sources**	100,000	5,800.							
Estimated Emissions from Point Sources**	20,000.	1,200.							
<b>Total Estimated Country Emissions</b>	<b>120,000</b>	<b>7,000.</b>							

\* considered as emissions from 75% of point sources within the Danube Basin in the Country

\*\* source : Transboundary Analysis

**COUNTRY: AUSTRIA**

**Existing Situation**

**Action - Pollution Reduction Programme**

Sector	Emission Source / Hot Spot	Nutrient Load		Project / Hot Spot	Expected Reduction			Costs			Time frame	Financial status
		N	P		N	P	Total Investments	Incremental	Baseline			
		t/y			t/y		mil USD					
Municipal	Wien-Simmering	5,600.0	150.0	Wien - HKA - extension and upgrade of NP removal	2,000.0		470.1	423.1	47.0			
	Linz / Asten	2,270.0	124.0	Linz - Asten - extension and upgrade of NP removal	770.0	64.0	55.6	50.0	5.6			
	Graz	1,680.0	380.0	Graz - extension and upgrade of NP removal	1,180.0	340.0	42.7	38.5	4.3			
	Klagenfurt	284.0	11.0	Klagenfurt - upgrade of N removal	90.0		7.7	6.9	0.8			
	Salzburg/Siggerw.	807.0	109.0									
	An der Traisen	220.0	14.0									
	Wien-Blumental	200.0	15.0									
	Schwechat	186.0	13.0									
	Spittal a.d. Drau	160.2	14.0									
	Wieselburg	156.0	13.0									
	Wr.Neustadt Süd	152.0	12.0									
	Innsbruck	137.3	15.0									
	Krems	104.0	43.0									
	<b>subtotal</b>	<b>11,956.5</b>	<b>913.0</b>	<b>subtotal</b>	<b>4,040.0</b>	<b>404.0</b>	<b>576.1</b>	<b>518.5</b>	<b>57.6</b>			
	Others	2,542.9	305.9	Others	0.0	0.0	0.0	0.0	0.0			
<b>Total Municipalities</b>	<b>14,499.4</b>	<b>1,218.9</b>	<b>Total Municipalities</b>	<b>4,040.0</b>	<b>404.0</b>	<b>576.1</b>	<b>518.5</b>	<b>57.6</b>				
Industrial	SCA Fine Paper Hallein 1997		20.0	PCA Fine Paper Hallein			38.5	7.7	30.8			
	BIOCHEMIE GmbH Kundl	530.0		Biochemie GmbH Kundl	470.0		42.7	8.5	34.2			
	ÖCW Weißenstein/DEGUSSA		3.6									

	Jung-Bunzlauer GmbH&CoKG	160.0							
	Lenzing AG (pulp)		1.9						
	Steyrermühl AG (paper)		2.2						
	SCA Laakirchen (paper)		1.1						
	Leykam Gratkorn								
	Norske-Skog Bruck/Mur								
	Zellstoff Pöls (pulp)								
	<b>Subtotal</b>	<b>690.0</b>	<b>28.8</b>	<b>470.0</b>	<b>0.0</b>	<b>81.2</b>	<b>16.2</b>	<b>65.0</b>	
	Others	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	<b>Total Industry</b>	<b>690.0</b>	<b>28.8</b>	<b>470.0</b>	<b>0.0</b>	<b>81.2</b>	<b>16.2</b>	<b>65.0</b>	
Agr.									
	<b>Subtotal</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	
	Others	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	<b>Total Agriculture</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	
Wetl									
	Drösinger Wald			165.0	17.0	42.9	9.9	33.0	
	<b>Subtotal</b>	<b>165.0</b>	<b>17.0</b>	<b>165.0</b>	<b>17.0</b>	<b>42.9</b>	<b>9.9</b>	<b>33.0</b>	
	Others	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	<b>Total Wetlands</b>	<b>165.0</b>	<b>17.0</b>	<b>165.0</b>	<b>17.0</b>	<b>42.9</b>	<b>9.9</b>	<b>33.0</b>	

<b>Emissions from Mointored Point Sources*</b>	<b>15,189.4</b>	<b>1,247.7</b>	<b>Total Pollution Reduction - Pollution Reduction Programme</b>	<b>4,675.0</b>	<b>421.0</b>	<b>700.2</b>	<b>544.6</b>	<b>155.6</b>
--	-----------------	----------------	--	----------------	--------------	--------------	--------------	--------------

Estimated Emissions from Diffuse Sources**	72,000.0	4,600.0
Estimated Emissions from Point Sources**	24,000.0	2,200.0
<b>Total Estimated Country Emissions</b>	<b>96,000.0</b>	<b>6,800.0</b>

\* considered as emissions from 75% of point sources within the Danube Basin in the Country

\*\* source : Transboundary Analysis

**COUNTRY: CZECH  
REPUBLIC**

**Existing Situation**

**Action - Pollution Reduction  
Programme**

Sector	Emission Source / Hot Spot	Nutrient Load		Project / Hot Spot	Expected Reduction		Costs			Time frame	Financial status
		N	P		N	P	Total Investments	Incremental	Baseline		
		t/y			t/y		mil USD				
Municipal	BRNO	477.2	101.5	Extension of Municipal WWTP for the City of Brno (in Modrice )	277.0	61.7	39.7	35.7	4.0		
	ZLIN	237.6	37.3	Extension and Intensification of WWTP in Zlin - Malenovice	237.0	23.0	10.8	9.7	1.1		
	UHERSKE HRADISTE	87.3	14.3	Reconstruction of the Technology in WWTP Uherske Hradiste	73.8	11.6	5.0	2.5	2.5		
	HODONIN	25.9	7.0	Intensification and Extension of Waste Water Treatment Plant Hodonin	60.0	10.0	2.3	2.1	0.2		
	BRECLAV	110.3	2.3	M. Breclav - Reconstruction and intensification of WWTP (NP removal)	35.0	1.0	10.1	9.1	1.0		
	PREROV	130.9	7.8	Prerov - WWTP reconstruction - biological stage and NP removal	94.3	0.5	8.7	7.8	0.9		
	KROMERIZ	132.0	13.0	WWTP Kromeriz reconstruction - biological stage and N+P removal	70.0	2.0	9.2	8.3	0.9		
	PROSTEJOV	133.2	13.4	WWTP Prostejov reconstruction - biological stage and N+P removal	75.0	3.0	13.1	11.8	1.3		
		50.0	8.1	WWTP Znojmor reconstruction - biological stage and N+P removal	20.0	2.0	6.8	6.1	0.7		
	OLOMOUC	324.0	115.5								



	<b>Total Agriculture</b>	<b>0.0</b>	<b>0.0</b>		<b>159.0</b>	<b>16.0</b>	<b>31.2</b>	<b>2.3</b>	<b>28.9</b>
Wet					520.0	52.0	70.6	31.2	39.4
					<b>520.0</b>	<b>52.0</b>	<b>70.6</b>	<b>31.2</b>	<b>39.4</b>
					0.0	0.0	0.0	0.0	0.0
	<b>Total Wetlands</b>				<b>520.0</b>	<b>52.0</b>	<b>70.6</b>	<b>31.2</b>	<b>39.4</b>

<b>Emissions from Monitored Point Sources*</b>	<b>2,940.7</b>	<b>543.9</b>			<b>1,661.1</b>	<b>186.8</b>	<b>210.8</b>	<b>128.4</b>	<b>82.4</b>
<b>Total Pollution Reduction - Pollution Reduction Programme</b>									

<b>Estimated Emissions from Diffuse Sources**</b>	<b>19,000.</b>	<b>800.0</b>
<b>Estimated Emissions from Point Sources**</b>	<b>13,000.</b>	<b>2,600.</b>
<b>Total Estimated Country Emissions</b>	<b>32,000.</b>	<b>3,400.</b>

\* considered as emissions from 75% of point sources within the Danube Basin in the Country

\*\* source : Transboundary Analysis

## COUNTRY: SLOVAKIA

### Existing Situation

Sector	Emission Source / Hot Spot	Nutrient Load	
		N	P
		t/y	
Municipalities	Košice	395.0	79.0
	Nitra	181.0	17.0
	Banska Bystrica	61.0	3.0
	Michalovce	51.0	13.0
	Svidník	39.0	6.0
	Trencin, right side	84.0	19.0
	Humenné	160.0	21.0
	Topolcany	134.0	26.0
		74.5	7.0
	Liptov. Mikuláš	480.0	9.8
	Ruzomberok	632.0	9.0
	<b>subtotal</b>	<b>2,291.5</b>	<b>209.8</b>
Others *	3,262.5	120.3	
<b>Total Municipalities</b>	<b>5,554.</b>	<b>330.1</b>	

### Action - Pollution Reduction Programme

Project / Hot Spot	Expected Reduction		Costs			Time frame	Financial status
	N	P	Total Investments	Incremental	Baseline		
	t/y		mil USD				
Kosice - expansion of WWTP 2nd stage of construction	446.7	107.0	25.7	12.9	12.9		
Nitra - construction and expansion of WWTP	370.0	76.6	15.8	7.9	7.9		
Expansion of WWTP Banska Bystrica	345.8	71.6	17.0	8.5	8.5		
Upgrading of WWTP Michalovce	218.5		3.3	1.6	1.6		
Svidnik-sewer network and WWTP	63.5	6.4	11.7	0.6	11.1		
Trencin-sewer system and WWTP	198.8	50.3	7.6	0.4	7.2		
Expansion of WWTP Humenné	148.3		17.1	8.5	8.5		
Topolcany - WWTP upgrading			1.0	0.9	0.1		
Rožnava-expansion of WWTP			2.6	1.3	1.3		
Liptovský Mikuláš - reconstruction of WWTP 2nd stage			2.3	2.1	0.2		
<b>subtotal</b>	<b>1,791.6</b>	<b>311.9</b>	<b>104.0</b>	<b>44.6</b>	<b>59.4</b>		
Others	0.0	0.0	0.0		0.0		
<b>Total Municipalities</b>	<b>1,791.</b>	<b>311.9</b>	<b>104.0</b>	<b>44.6</b>	<b>59.4</b>		

		0	
Indus t.*	Novaky Chem. Plants		
	Bukocel Vranov ?? Hencovce		
	Povaz. Chem. Plants	168.0	
	Chemko Strázske		
		33.2	
	Istrochem Bratislava		
	Assi Doman Sturovo		
	Bucina Zvolen		
Biotika Slovenska Lupca	151.0		

	6					
Removal of chlorinated hydrocarbons in the production of propylenoxid - Novaky Chemical Plant		0.9	0.2	0.7		
Management of wastewater in NCHZ Nováky, a.s.		0.3	0.1	0.3		
Reconstruction of wastewater treatment plant in Bukocel, a.s.		5.7	2.9	2.9		
Reconstruction of wwtp - Povazske Chemical Plant		0.6	0.6	0.1		
Reconstruction of caprolactam holding tanks - Povazske chemical plant		1.6	0.3	1.3		
Reconstruction of methylmethacrylate holding tanks - Povazske chemical plant		0.8	0.2	0.6		
Project 2000, Chemical plant Strazske		2.0	0.4	1.6		
Barrelling the chemicals for production - Chemical plant Strazske		0.5	0.1	0.4		
Reconstruction of activated sludge tanks of wwtp- Chemical plant Strazske		0.4	0.2	0.2		
Reconstruction of sewer system - Chemical plant Strazske		2.9	0.0	2.9		
Istrochem Bratislava						
The reduction of discharged wastewater pollution to the Danube River, AssiDomän Packaging Sturovo, a.s.		9.1	4.5	4.5		
Construction of WWTP with reconstruction and expansion of sewer network, Bucina Zvolen		2.7	0.8	1.9		
Wastewater treatment plant reconstruction, Biotika Slovenska Lupca		1.4	0.7	0.7		

	Tanning Factory Bosany	30.0	
	<b>Subtotal</b>	<b>419.6</b>	<b>0.0</b>
	Others	2.1	0.0
	<b>Total Industry</b>	<b>421.7</b>	<b>0.0</b>
Agr.			
	<b>Subtotal</b>	<b>0.0</b>	<b>0.0</b>
	Others	0.0	0.0
	<b>Total Agriculture</b>	<b>0.0</b>	<b>0.0</b>
Wetl.			

			2.3	0.5	1.8		
	Centralise the collection and treatment of wastewater polluted by chrome, Kozeluzne Bosany						
	Sludge disposal upgrading in Wastewater Treatment Plant, VSZ Kosice		3.3	1.6	1.6		
	<b>Subtotal</b>	<b>0.0</b>	<b>0.0</b>	<b>34.5</b>	<b>13.0</b>	<b>21.5</b>	
	Others	0.0	0.0	40.1	8.2	31.8	
	<b>Total Industry</b>	<b>0.0</b>	<b>0.0</b>	<b>74.6</b>	<b>21.3</b>	<b>53.3</b>	
	<b>Subtotal</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	
	Others	0.0	0.0	0.0	0.0	0.0	
	<b>Total Agriculture</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	
	Mouth of Bodrog - Revitalization fo wetland of the Bodrog river basin	113.0	11.0	9.0	1.1	7.9	
	Floodplain Meadow Restoration in the Lower Morava River						
	<b>Subtotal</b>	<b>113.0</b>	<b>11.0</b>	<b>9.0</b>	<b>1.1</b>	<b>7.9</b>	
	Others	0.0	0.0	0.0	0.0	0.0	
	<b>Total Wetlands</b>	<b>113.0</b>	<b>11.0</b>	<b>9.0</b>	<b>1.1</b>	<b>7.9</b>	

<b>Emissions from Mointored Point Sources*</b>	<b>5,975.7</b>	<b>330.1</b>
--	----------------	--------------

<b>Total Pollution Reduction - Pollution Reduction Programme</b>	<b>1,904.6</b>	<b>322.9</b>	<b>187.6</b>	<b>67.0</b>	<b>120.6</b>
--	----------------	--------------	--------------	-------------	--------------

Estimated Emissions from Diffuse Sources**	40,000.0	2,600.0
Estimated Emissions from Point Sources**	14,000.0	3,000.0
<b>Total Estimated Country Emissions</b>	<b>54,000.0</b>	<b>5,600.0</b>

\* available only as NH4

\* considered as emissions from 75% of point sources within the Danube Basin in the Country

\*\* source : Transboundary Analysis

## COUNTRY: HUNGARY

### Existing Situation

### Action - Pollution Reduction Programme

Sector	Emission Source / Hot Spot	Nutrient Load		Project / Hot Spot	Expected Reduction			Costs		Time frame	Financial status
		N	P		N	P	Total Investments	Incremental	Baseline		
		t/y			t/y		mil USD				
Municipal	Budapest south	715.0	50.0	Expansion of WWTP at South Pest	203.0	122.0	27.9	25.1	2.8		
	Budapest north	524.0	103.0	Expansion of WWTP at North Budapest	308.0	183.0	32.3	16.1	16.1		
	Budapest	3,490.0									
	Szeged	0.9	-	Construction of the WWTP of Szeged, Mechanical treatment I/b Phase	270.0	30.0	6.6	2.0	4.6		
	Gyor	423.0	63.0	Győr town WWTP development and extension of the II. Treatment phase and sludge management	273.0	43.0	12.7	6.3	6.3		
	Szolnok	200.0	49.0	Construction of the WWTP at Dunaujvaros	53.0	32.0	10.6	3.2	7.4		
	<b>subtotal</b>	<b>5,352.9</b>	<b>265.0</b>	<b>subtotal</b>	<b>1,107.0</b>	<b>410.0</b>	<b>90.0</b>	<b>52.7</b>	<b>37.3</b>		
	Others	1,809.1	655.0	Others	0.0	0.0	0.0	0.0	0.0		
	<b>Total Municipalities</b>	<b>7,162.0</b>	<b>920.0</b>	<b>Total Municipalities</b>	<b>1,107.0</b>	<b>410.0</b>	<b>90.0</b>	<b>52.7</b>	<b>37.3</b>		
Industrial	MOL Rt. (Százhalombatta)	8.0		Water and wastewater development program at the Danube refinery of the MOL Company			48.7	9.7	39.0		
	Nitrokémia (Balatonfűzfő)	835.8	12.0	General reconstruction of the wastewater treatment system of the Nitrokémia Company	420.0	6.0	5.9	2.9	2.9		

	Neusiedler Pap. W. (Szolnok)	1.9	0.0	Salty technological water concentration and crystallisation unit development for salt reuse in the frame of the salty water reduction program			2.9	0.6	2.3		
	Sugar Factory (Szolnok)	33.2	3.8								
	Agroferm (Kaba)	199.1	18.4								
	Nitrogen Works (Pét)	727.1									
	Dunaferr	287.1									
	<b>Subtotal</b>	<b>2,092.2</b>	<b>34.2</b>	<b>Subtotal</b>	<b>420.0</b>	<b>6.0</b>	<b>57.5</b>	<b>13.3</b>	<b>44.3</b>		
	Others	128.0	16.9	Others	0.0	0.0	0.0	0.0	0.0		
	<b>Total Industry</b>	<b>2,220.2</b>	<b>51.1</b>	<b>Total Industry</b>	<b>420.0</b>	<b>6.0</b>	<b>57.5</b>	<b>13.3</b>	<b>44.3</b>		
Agr.											
	<b>Subtotal</b>	<b>0.0</b>	<b>0.0</b>	<b>Subtotal</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>		
	Others	0.0	0.0	Others	0.0	0.0	0.0	0.0	0.0		
	<b>Total Agriculture</b>	<b>0.0</b>	<b>0.0</b>	<b>Total Agriculture</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>		
Wetl				Area between Gemeneç and Kopacki Rit - Rehabilitation and management of the water related ecosystems in the Danube-Drava Region	4,050.0	405.0	303.8	20.3	283.5		
				Mouth of Bodrog	113.0	11.0	9.0	1.1	7.9		
				<b>Subtotal</b>	<b>4,163.0</b>	<b>416.0</b>	<b>312.8</b>	<b>21.4</b>	<b>291.4</b>		
				Others	0.0	0.0	0.0	0.0	0.0		
				<b>Total Wetlands</b>	<b>4,163.0</b>	<b>416.0</b>	<b>312.8</b>	<b>21.4</b>	<b>291.4</b>		

<b>Emissions from Monitored Point Sources*</b>	<b>9,382.2</b>	<b>971.1</b>
--	----------------	--------------

<b>Total Pollution Reduction - Pollution Reduction Programme</b>	<b>5,690.0</b>	<b>832.0</b>	<b>460.3</b>	<b>87.4</b>	<b>372.9</b>
--	----------------	--------------	--------------	-------------	--------------

Estimated Emissions from Diffuse Sources**	63,000.0	7,800.0
Estimated Emissions from Point Sources**	19,000.0	5,400.0
<b>Total Estimated Country</b>	<b>82,000</b>	<b>13,200</b>

Emissions	.0	.0
-----------	----	----

\* considered as emissions from 75% of point sources within the Danube Basin in the Country

\*\* source : Transboundary

Analysis

**COUNTRY:  
SLOVENIA**

**Existing Situation**

Sector	Emission Source / Hot Spot	Nutrient Load	
		N	P
		t/y	
Municipal	Ljubljana	1,069.0	240.0
	Maribor	564.0	180.0
	Domzale	218.0	24.0
	Vrhnika	4.0	0.3
	Celje		
	Ptuj	166.0	8.0
	Velenje	123.0	16.0
	Murska Sobota	108.0	9.0
	Kranj	126.0	13.0

**Action - Pollution Reduction Programme**

Project / Hot Spot	Expected Reduction		Costs			Time frame	Financial status
	N	P	Total Investments	Incremental	Baseline		
	t/y		mil USD				
WWTP municipality Ljubljana	1,575.0	350.0	124.2	37.3	86.9		
Construction of the Central WWTP Maribor and the Concession for the Treatment of Waste Water in Maribor	945.0	210.0	57.6	17.3	40.3		
Upgrading of the central WWTP Domzale - Kamnik - nitrification/denitrification	630.0	140.0	13.7	12.3	1.4		
Central WWTP Vrhnika			3.2	1.0	2.2		
Central wwtp Celje - outline solution with new input data	283.0	63.0	11.8	3.5	8.3		
Ptuj	346.0	77.0	11.0	3.3	7.7		
Construction of the second phase of Central WWTP of Šaleška dolina (Šalek valley - Velenje)	158.0	35.0	29.1	8.7	20.4		
WWTP municipality Murska Sobota	189.0	42.0	9.9	3.0	6.9		
Central WWTP of town Krško - outline scheme	47.0	11.0	2.5	0.8	1.8		
WWTP Municipality Rogaška Slatina			3.6	1.1	2.5		
WWTP municipal Lendava	69.0	15.0	5.0	1.5	3.5		

	<b>subtotal</b>	<b>2,378.0</b>	<b>490.3</b>	<b>subtotal</b>	<b>4,242.0</b>	<b>943.0</b>	<b>271.7</b>	<b>89.7</b>	<b>182.0</b>		
	Others	105.3	36.0	Others	130.0	29.0	8.7	3.4	5.4		
	<b>Total Municipalities</b>	<b>2,483.3</b>	<b>526.3</b>	<b>Total Municipalities</b>	<b>4,372.0</b>	<b>972.0</b>	<b>280.4</b>	<b>93.1</b>	<b>187.3</b>		
Indu st.	Pivovarna Lasko			WWTP Brewery Laško	158.0	35.0	13.2	0.7	12.5		
	ICEC Videm Krsko			WWTP of the Paper Factory ICEC Krško	1,418.0	315.0	17.4	5.2	12.2		
	Paloma/Sladki vrh			WWTP of the Paper Factory Sladkogorska (or Paloma)	158.0	35.0	3.0	0.9	2.1		
	Pomurka/Murska Sobota			WWTP Pomurka Murska Sobota	47.0	11.0					
	KG Rakican			WWTP Leather Processing industry of Vrhnika	315.0	70.0	17.0	3.4	13.6		
	Pivovarna Union/Ljubljana			WWTP of the Brewery Union, Ljubljana	220.0	49.0	3.9	0.2	3.7		
	Ljubljanske mlekarne			Diary Industry for Ljubljana	95.0	21.0					
	Mariborska mlekarne/Maribor			Diary Industry for Maribor	110.0	25.0					
	Papir Radece										
	Vitacel Krsko										
	Videm papir Krsko										
	<b>Subtotal</b>	<b>0.0</b>	<b>0.0</b>	<b>Subtotal</b>	<b>635.0</b>	<b>40.0</b>	<b>6.3</b>	<b>1.3</b>	<b>5.0</b>		
	Others	0.0	0.0	Others	0.0	0.0	0.0	0.0	0.0		
<b>Total Industry</b>	<b>0.0</b>	<b>0.0</b>	<b>Total Industry</b>	<b>635.0</b>	<b>40.0</b>	<b>6.3</b>	<b>1.3</b>	<b>5.0</b>			
Agri c.	Farma Ihan/ Domzale			Farm Ihan	346.0	77.0					
				Construction of the Liquid Manure Treatment Plant Podgrad as a turn-key project	126.0	28.0	1.4	0.3	1.1		
				Reconstruction of the wwtp for Pig Farmings Nemščak and Jezera of Izakovci.	350.0	80.0	5.6	1.1	4.5		
	<b>Subtotal</b>	<b>0.0</b>	<b>0.0</b>	<b>Subtotal</b>	<b>822.0</b>	<b>185.0</b>	<b>7.0</b>	<b>1.4</b>	<b>5.6</b>		
	Others	0.0	0.0	Others	0.0	0.0	0.0	0.0	0.0		
<b>Total Agriculture</b>	<b>0.0</b>	<b>0.0</b>	<b>Total Agriculture</b>	<b>822.0</b>	<b>185.0</b>	<b>7.0</b>	<b>1.4</b>	<b>5.6</b>			
Wetl											
				<b>Subtotal</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>		
				Others	0.0	0.0	0.0	0.0	0.0		
			<b>Total Wetlands</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>			

Emissions from Mointored Point Sources*	2,483.3	526.3	Total Pollution Reduction - Pollution Reduction Programme			
			293.7	1,197.0	95.7	198.0

Estimated Emissions from Diffuse Sources**	12,000.	1,300.				
Estimated Emissions from Point Sources**	12,000.	1,500.				
<b>Total Estimated Country Emissions</b>	<b>24,000.</b>	<b>2,800.</b>				

\* considered as emissions from 75% of point sources within the Danube Basin in the Country

\*\* source : Transboundary Analysis

**COUNTRY: CROATIA**

**Existing Situation**

**Action - Pollution Reduction Programme**

	Sector	Nutrient Load		Project / Hot Spot	Expected Reduction			Costs		Time frame	Financial status
		Emission Source / Hot Spot	N		P	Total Investments	Incremental	Baseline			
			t/y		mil USD						
Municipic.	Karlovac	320.0	80.0	The sewerage and waste water treatment of cities of Karlovac and Duga Resa	9.0	16.0	50.0	15.0	35.0		
	Zagreb	4,400.0	1,100.0	The central WWTP of city of Zagreb	1,320.0	220.0	256.0	76.8	179.2		
	Osijek	530.0	90.0	The general solution of the sewerage system of city of Osijek	160.0	18.0	5.6	0.3	5.3		
	Varazdin	140.0	60.0	The reconstruction of the WWTP of city of Varazdin	132.0	1.0	12.0	6.0	6.0		
	Slavonski Brod	240.0	60.0	The sewerage and waste water treatment of city of Slavonski Brod and wider area	52.0		50.0	15.0	35.0		
	Bjelovar	90.0	11.0	The WWTPt of city of Bjelovar.			6.7	3.3	3.3		
	Sisak	240.0	60.0	The sewerage and waste water treatment of city of Sisak	48.0	2.0	60.0	18.0	42.0		
	Koprivnica	29.0	9.0	The WWTP of city of Koprivnica			10.8	5.4	5.4		
		89.0	8.0	The sewerage system and the WWTP of city of Belišće	27.0	1.0	4.8	0.2	4.6		
	Virovitica	56.0	5.0	The retention basin of the WWTP of Virovitica			1.8	0.9	0.9		
	Čakovec	22.0	7.0	The WWTP of city of Čakovec and nearby towns			7.3	2.2	5.1		
	Vukovar	53.0	9.0	WWTP Vukovar							

			The sewerage and waste water treatment of city of Vinkovci.			12.0	3.6	8.4		
			The sewerage and waste water treatment of the National Park Plitvice lakes			16.0	0.8	15.2		
			The sewerage and waste water treatment of city of Zupanja			11.0	3.3	7.7		
			The sewerage and WWTP of city of Kutina and surrounding settlements			12.0	3.6	8.4		
	<b>subtotal</b>	<b>6,209.0</b>	<b>1,499.0</b>	<b>subtotal</b>	<b>1,748</b>	<b>258.0</b>	<b>516.0</b>	<b>154.5</b>	<b>361.6</b>	
	Others	0.0	0.0	Others	16.0	1.0	213.2	44.5	168.7	
	<b>Total Municipalities</b>	<b>6,209.0</b>	<b>1,499.0</b>	<b>Total Municipalities</b>	<b>1,764</b>	<b>259.0</b>	<b>729.2</b>	<b>198.9</b>	<b>530.3</b>	
					<b>.0</b>					
Indu st.	"Podravka-Danica, Koprivnica	53.4	1.8	WWTP of food industry "Kvasac-Podravka" d.d. of Koprivnica			0.2	0.1	0.1	
	Complex "Belisce", Belisce	38.7		The WWTP of industrial area Danica of Koprivnica			4.0	1.2	2.8	
	Sugar factory Osijek	17.7	5.3	Belisce (paper)						
	Pik Vrbovec, Vrbovec	10.1	2.8	IPK Osijek sugar factory						
	"Petrokemija Kutina", Kutina	400.0		The waste water treatment of meat industry PIK "Vrbovec"						
				The building of the system for the collection and treatment of highly polluted waste water of "Petrokemija" d.d. Kutina			1.0	0.2	0.8	
				The waste water treatment plant of "Agroproteinka" d.d. WWTP Zapresic						
				The waste water treatment of meat industry "Gavrilovic" d.o.o. Petrinja			0.3	0.1	0.3	
	Brewery Osijek	4.3	3.0							
	"Pliva" Savski Marof									
	Sugar factory "Zupanja", Zupanja									
	Brewery Karlovac									
Steel industry	0.9	0.1								

	Sisak, Sisak											
	<b>Subtotal</b>	<b>525.1</b>	<b>13.0</b>	<b>Subtotal</b>	<b>0.0</b>	<b>0.0</b>	<b>5.5</b>	<b>1.6</b>	<b>3.9</b>			
	Others	0.0	0.0	Others	0.0	0.0	0.0	0.0	0.0			
	<b>Total Industry</b>	<b>525.1</b>	<b>13.0</b>	<b>Total Industry</b>	<b>0.0</b>	<b>0.0</b>	<b>5.5</b>	<b>1.6</b>	<b>3.9</b>			
Agri	Farm "Senkovic"	12.0	10.5	Farma Senkovic (pig farm)	7.0	2.8						
c.	Slatina			The sewerage system and waste water treatment of the farm "Dubravica" d.d.								
	Farm Dubravica", Dubravica		46.7	Farma Luzani		1.4						
				Renewal of animal stock at PIK "Belje"								
				The erosion and sustainable soil management for middle Croatia region (non-structural project)			0.1		0.1			
				The influence of increased quantity of mineralised nitrogen on its rinse and growth of plants (non-structural project)			0.0		0.0			
	<b>Subtotal</b>	<b>12.0</b>	<b>57.2</b>	<b>Subtotal</b>	<b>7.0</b>	<b>4.2</b>	<b>0.1</b>	<b>0.0</b>	<b>0.1</b>			
	Others	0.0	0.0	Others	0.0	0.0	0.0	0.0	0.0			
	<b>Total Agriculture</b>	<b>12.0</b>	<b>57.2</b>	<b>Total Agriculture</b>	<b>7.0</b>	<b>4.2</b>	<b>0.1</b>	<b>0.0</b>	<b>0.1</b>			
Wetl				Area between Gemenc and Kopacki Rit - Preservation and rehabilitation of the Drava river basin wetlands in Baranja region	4,050.0	405.0	141.8	20.3	121.5			
				Mokro Polje	837.0	84.0	33.5	8.4	25.1			
				<b>Subtotal</b>	<b>4,887.0</b>	<b>489.0</b>	<b>175.2</b>	<b>28.6</b>	<b>146.6</b>			
				Others	0.0	0.0	0.0	0.0	0.0			
				<b>Total Wetlands</b>	<b>4,887.0</b>	<b>489.0</b>	<b>175.2</b>	<b>28.6</b>	<b>146.6</b>			

<b>Emissions from Mointored Point Sources*</b>	<b>6,746.1</b>	<b>1,569.2</b>
--	----------------	----------------

<b>Total Pollution Reduction - Pollution Reduction Programme</b>	<b>6,658.0</b>	<b>752.2</b>	<b>910.1</b>	<b>229.1</b>	<b>681.0</b>
--	----------------	--------------	--------------	--------------	--------------

Estimated Emissions from Diffuse Sources**	27,000.0	2,700.0
--	----------	---------

Estimated Emissions from Point Sources**	8,000.0	1,400.0
<b>Total Estimated Country Emissions</b>	<b>35,000.0</b>	<b>4,100.0</b>

\* considered as emissions from 75% of point sources within the Danube Basin in the Country

\*\* source : Transboundary  
Analysis

**COUNTRY: BOSNIA-HERZEGOVINA**

**Existing Situation**

**Action - Pollution Reduction Programme**

Sector	Emission Source / Hot Spot	Nutrient Load		Project / Hot Spot	Expected Reduction		Costs			Time frame	Financial status
		N	P		N	P	Total Investments	Incremental	Baseline		
		t/y			t/y		mil USD				
Municip.	Tuzla	481.3	144.4	Construction of regional sewerage system Tuzla-Lukavac with central WWTP for cities and industry.	1,080.0	160.0	58.0	2.9	55.1		
	Sarajevo	620.5	176.0	Rehabilitation and reconstruction sewerage and industry WWTP of city Sarajevo	1,015.0	150.0	15.0	3.0	12.0		
				Construction of regional sewerage system Sarajevo-Visoko with central WWTP near Visoko for cities and industry.	68.0	10.0	28.5	1.4	27.1		
	Banja Luka	712.3	213.7	Construction of regional sewerage system Banja Luka with central WWTP for city and industry	910.0	140.0	50.0	2.5	47.5		
	Zenica	531.4	159.4	Construction sewerage system Zenica with central WWTP for city and industry			24.0	1.2	22.8		
				Construction regional sewerage system Gornji Vakuf- Bugojno- Donji Vakuf with central waste water treatment plant for cities and industry.	95.0	14.0	18.5	0.9	17.6		

			Construction of regional sewerage system Travnik-Vitez with central WWTP near Vitez for cities and industry.			10.0	0.5	9.5		
			Construction of collecting system Pliva-Jajce with central waste water treatment			6.1	0.3	5.7		
			Construction sewerage system Bijeljina with central WWTP for city and industry.			12.0	0.6	11.4		
Doboj	374.1	112.2								
Prijedor	411.5	123.2								
<b>subtotal</b>	<b>3,131.1</b>	<b>928.9</b>	<b>subtotal</b>	<b>3,168.0</b>	<b>474.0</b>	<b>222.1</b>	<b>13.4</b>	<b>208.7</b>		
Others	0.0	1.0	Others	0.0	0.0	0.0	0.0	0.0		
<b>Total Municipalities</b>	<b>3,131.1</b>	<b>929.9</b>	<b>Total Municipalities</b>	<b>3,168.0</b>	<b>474.0</b>	<b>222.1</b>	<b>13.4</b>	<b>208.7</b>		
Indu st.	Steam power plant-Tuzla		Reconstruction of pre-treatment WWTP in Chlorine Alkaline Complex in Tuzla			2.2	0.4	1.8		
	Pulp and paper industry-Maglaj		Rehabilitation and reconstruction WWTP in "Natron" Maglaj			3.0	1.5	1.5		
	Iron work-Zenica		Reconstruction of industry WWTP for DD "Zeljezara" Zenica			1.6	0.8	0.8		
	Main Raspotocje-Zenica									
	Main Stranjani-Zenica									
	(Coal separation-Zenica)									
	KTK-Tannery-Sarajevo									
			Construction of industrial WWTP in the Sodium Factory Lukavac			6.0	1.8	4.2		
		Construction of industrial WWTP for "Destilacija drveta" Teslic			5.3	1.6	3.7			
		Construction of Industrial			9.2	2.8	6.4			

			WWTP for DD "Maglic" Foca							
			Reconstruction of pretreatment WWTP in Coke Chemical Combine Lukavac			2.8	0.6	2.2		
			Reconstruction and improve WWTP from "Incel" Banja Luka			3.5	1.8	1.8		
			Construction waste water treatment plant for "Celpak" Prijedor			14.0	4.2	9.8		
			<b>Subtotal</b>	<b>0.0</b>	<b>0.0</b>	<b>47.6</b>	<b>15.4</b>	<b>32.2</b>		
			Others	0.0	0.0	0.0	0.0	0.0		
			<b>Total Industry</b>	<b>0.0</b>	<b>0.0</b>	<b>47.6</b>	<b>15.4</b>	<b>32.2</b>		
Agric			Construction of WWTP for dairy and pigs breeding farm in the Nova Topola	1,130. 0	250.0	6.5	2.0	4.6		
			Construction of WWTP for pigs breeding farm in the Brcko	1,570. 0	350.0	2.3	0.7	1.6		
			Construction of WWTP for dairy farm "Spreca" Kalesija	5.0	2.0	2.2	0.7	1.5		
			Construction of WWTP for dairy farm "Butmir" Sarajevo			1.9	0.6	1.3		
			Construction of WWTP for dairy and pigs breeding farm Bijeljina.			2.0	0.6	1.4		
			<b>Subtotal</b>	<b>2,705. 0</b>	<b>602.0</b>	<b>14.9</b>	<b>4.5</b>	<b>10.4</b>		
			Others	0.0	0.0	0.0	0.0	0.0		
			<b>Total Agriculture</b>	<b>2,705. 0</b>	<b>602.0</b>	<b>14.9</b>	<b>4.5</b>	<b>10.4</b>		
Wetl.			Area of Mouth of Drina	2,000. 0	200.0	80.0	20.0	60.0		
			<b>Subtotal</b>	<b>2,000. 0</b>	<b>200.0</b>	<b>80.0</b>	<b>20.0</b>	<b>60.0</b>		
			Others	0.0	0.0	0.0	0.0	0.0		
			<b>Total Wetlands</b>	<b>2,000. 0</b>	<b>200.0</b>	<b>80.0</b>	<b>20.0</b>	<b>60.0</b>		

<b>Emissions from Mointored Point Sources*</b>	<b>3,131.1</b>	<b>929.9</b>
--	----------------	--------------

<b>Total Pollution Reduction - Pollution Reduction Programme</b>	<b>7,873.0</b>	<b>1,276.0</b>	<b>364.6</b>	<b>53.2</b>	<b>311.3</b>
--	----------------	----------------	--------------	-------------	--------------

Estimated Emissions from Diffuse Sources**	29,000.0	1,900.0
Estimated Emissions from Point Sources**	8,000.0	3,200.0
<b>Total Estimated Country Emissions</b>	<b>37,000.0</b>	<b>5,100.0</b>

\* considered as emissions from 75% of point sources within the Danube Basin in the Country

\*\* source : Transboundary Analysis

**COUNTRY:  
YUGOSLAVIA**

**Existing Situation**

**Action - Pollution Reduction  
Programme**

Sector	Emission Source / Hot Spot	Nutrient Load	
		N	P
		t/y	
Municipal	1. City of Belgrade (central)	6,041.0	1,359.0
	4. Ostruznicki sewer system (Sava)	201.0	45.0
	5. Novi Sad I - Dunav (Left Bank)	988.0	298.0
	6. Nis - Nisava	826.0	289.0
	7. Pristina - Sitnica	570.0	148.0
	15. Sabac - Sava	289.0	113.0
	11. Leskovac - J.Morava	295.0	132.0
	29. Mojkovac - Tara	19.0	5.0
	12. Krusevac (Reg) - Z. Morava	333.0	79.0
	13. Cacak - Z. Morava	410.0	139.0
	18. Novi Pazar - Z. Morava		
	19. Subotica - Palic & Ludos Lakes	696.0	187.0
	20. Uzice - Z. Morava	222.0	62.0
	21. Zajecar - V. Timok	205.0	55.0
	23. Bor - Borska	145.0	43.0
	24. Priot - Nisava	240.0	56.0
22. Senta - Tisa	238.0	55.0	
27. Blace - Blatasnica	48.0	15.0	
28. Kolasin - Tara	35.0	7.0	
16. Vranje - J Morava	286.0	92.0	

Project / Hot Spot	Expected Reduction		Costs			Time frame	Financial status
	N	P	Total Investments	Incremental	Baseline		
	t/y		mil USD				
WWTP "Veliko Selo" - Belgrade (central)	876.0	1,183.0	215.0	64.5	150.5		
WWTP "Ostruznica" - Belgrade	30.0	41.0	13.0	3.9	9.1		
City of Novi sad WWTP	148.0	268.0	53.0	15.9	37.1		
City of Nis WWTP	124.0	260.0	45.0	13.5	31.5		
City of Pristina WWTP	86.0	133.0	40.0	12.0	28.0		
City of Sabac WWTP	43.0	102.0	18.0	0.9	17.1		
City of Leskovac WWTP	44.0	119.0	25.0	7.5	17.5		
Mojkovac Town WWTP	3.0	5.0	3.0	0.9	2.1		
Krusevac WWTP	50.0	71.0	24.0	1.2	22.8		
Cacak WWTP	62.0	125.0	24.0	1.2	22.8		
Novi Pazar WWTP	38.0	90.0					
Subotica - upgrading WWTP	550.0	165.0	33.0	16.5	16.5		
Uzice WWTP	33.0	56.0	14.0	0.7	13.3		
Zajecar WWTP	31.0	50.0	14.0	0.7	13.3		
Bor WWTP	22.0	39.0	14.0	4.2	9.8		
Priot WWTP	36.0	50.0	14.0	4.2	9.8		
City of Senta WWTP	36.0	50.0	14.0	4.2	9.8		
Blace Town WWTP	38.0	13.0	8.0	2.4	5.6		
Kolasin Town WWTP	5.0	7.0	3.0	0.9	2.1		
WWTP Vranje	43.0	83.0	18.0	0.9	17.1		

	17. Valjevo - Kolubara	293.0	122.0	WWTP Valjevo	44.0	110.0	10.0	0.5	9.5		
	26. Rozaje - Ibar	38.0	12.0	WWTP Rozaje	6.0	11.0	6.0	0.3	5.7		
	8. Zrenjanin - Begej	975.0	226.0	City of Zrenjanin WWTP	160.0	214.0	38.0	1.9	36.1		
	10. Vrbas/Kula/Crvenka - DTD Canal	547.0	151.0	Vrbas/Kula/Crvenka	90.0	143.0	34.0	1.7	32.3		
	<b>subtotal</b>	<b>13,940.0</b>	<b>3,690.0</b>	<b>subtotal</b>	<b>2,598.0</b>	<b>3,388.0</b>	<b>680.0</b>	<b>160.6</b>	<b>519.4</b>		
	Others	0.0	0.0	Others	0.0	0.0	0.9	0.0	0.9		
	<b>Total Municipalities</b>	<b>13,940.0</b>	<b>3,690.0</b>	<b>Total Municipalities</b>	<b>2,598.0</b>	<b>3,388.0</b>	<b>680.9</b>	<b>160.6</b>	<b>520.3</b>		
Indu st.	RTB "Bor" - Majdanpek	38.0		RTB BOR		30.0	35.0	1.8	33.3		
	"FOPA"- Vladicin Han, paper mill			FOPA paper mill, Vladicin Han			15.0	0.8	14.3		
	IHP "Prahovo" - Prahovo	570.0	4,760.0	IHP Prahovo (fertilizers)	460.0	3,800.0	25.0	1.3	23.8		
	TE "Obilic" A and B - Obilic			TE "Obilic" A and B - Obilic							
	"Lepenka" - N.Knezevac	27.0	10.0	"Lepenka" - N. Knzevac	22.0	8.0					
	Trepca - Topionica			Trepca - Topionica							
	Trepca - Flotacija			Trepca - Flotacija							
	HI "Zorka" - Sabac	1,465.0		HI "Zarka" - Sabac	200.0	280.0					
				Eco Filling Station, Novi Sad			3.1	0.6	2.5		
				Ash Dump Belgrade							
	<b>Subtotal</b>	<b>2,100.0</b>	<b>4,770.0</b>	<b>Subtotal</b>	<b>682.0</b>	<b>4,118.0</b>	<b>78.1</b>	<b>4.4</b>	<b>73.7</b>		
	Others	0.0	0.0	Others	0.0	0.0	0.4	0.1	0.3		
	<b>Total Industry</b>	<b>2,100.0</b>	<b>4,770.0</b>	<b>Total Industry</b>	<b>682.0</b>	<b>4,118.0</b>	<b>78.5</b>	<b>4.5</b>	<b>74.0</b>		
Agri c.	6. DD Camex - Farmakop (pig farm) - Vrbas	127.8	47.9	FARMACOOP - DD Carmex, Vrbas	102.0	38.0	5.0	1.0	4.0		
	5. Dragan Markovic (pig farm) Obrenovac	73.0	27.4	D. Makovic, Obrenovac	58.0	22.0	5.0	1.0	4.0		
	1. DD IM Neoplanta - DD Cenej (pig farm) - Sirig	182.5	68.4	Neoplanta, Cenej	146.0	55.0	8.0	1.6	6.4		
	2. DP 1. Decembar - pig farm - Zitoradja	173.0	27.4	DP1. Decembar - pig farm - Zitoradja	58.0	22.0					
	3. DP Pik Varvarinsko Polje (pig farm) - Varvarin	91.3	34.2	DP Pik Varvarinsko Polje - Varvarin	73.0	27.0					

	4. Surcin (pig farm) - Surcin	127.8	47.9
	7. PDP Galad (pig farm) Kikinda		
	8. Pig farm DP "Petrovac" - Petrovac na Mlavi	80.3	30.1
	<b>Subtotal</b>	<b>855.7</b>	<b>283.3</b>
	Others	0.0	0.0
	<b>Total Agriculture</b>	<b>855.7</b>	<b>283.3</b>
Wetl			

	Surcin (Pig farm)	102.0	38.0				
	PDP Galad - Kikinda						
	Petrovac na Mlavi - Pig Farm DP "Petrovac"	64.0	24.0				
	<b>Subtotal</b>	<b>603.0</b>	<b>226.0</b>	<b>18.0</b>	<b>3.6</b>	<b>14.4</b>	
	Others	0.0	0.0	1.8	0.0	1.8	
	<b>Total Agriculture</b>	<b>603.0</b>	<b>226.0</b>	<b>19.8</b>	<b>3.6</b>	<b>16.2</b>	
	Area between Gemenc and Kopacki Rit	900.0	90.0	31.5	4.5	27.0	
	Area of Mouth of Drina	500.0	50.0	20.0	5.0	15.0	
	Lower Tisza	1,800.0	180.0	72.0	18.0	54.0	
	Study on floodplains and its contribution in pollution retention and removal			0.2		0.2	
	<b>Subtotal</b>	<b>3,200.0</b>	<b>320.0</b>	<b>123.7</b>	<b>27.5</b>	<b>96.2</b>	
	Others	0.0	0.0	0.0	0.0	0.0	
	<b>Total Wetlands</b>	<b>3,200.0</b>	<b>320.0</b>	<b>123.7</b>	<b>27.5</b>	<b>96.2</b>	

<b>Emissions from Mointored Point Sources*</b>	<b>16,895.7</b>	<b>8,743.3</b>
--	-----------------	----------------

<b>Total Pollution Reduction - Pollution Reduction Programme</b>	<b>7,083.0</b>	<b>8,052.0</b>	<b>902.9</b>	<b>196.2</b>	<b>706.8</b>
--	----------------	----------------	--------------	--------------	--------------

Estimated Emissions from Diffuse Sources**	74,000.0	7,900.0
Estimated Emissions from Point Sources**	32,000.0	9,800.0
<b>Total Estimated Country Emissions</b>	<b>106,000.0</b>	<b>17,700.0</b>

\* considered as emissions from 75% of point sources within the Danube Basin in the Country  
\*\* source : Transboundary Analysis

**COUNTRY:  
BULGARIA**

**Existing Situation**

**Action - Pollution Reduction  
Programme**

Sector	Emission Source / Hot Spot	Nutrient Load		Project / Hot Spot	Expected Reduction			Costs		Time frame	Financial status	
		N	P		N	P	Total Investments	Incremental	Baseline			
		t/y			t/y		mil USD					
Municipal	Lovech	346.0	72.0	Municipal WWTP - Lovetch	69.0	44.0	17.8	5.3	12.5			
	Vratza	318.0	30.0	Municipal WWTP - Vratza	258.0	43.0	7.6	2.3	5.3			
	Sofia	1,411.0	366.0	Municipal WWTP - Sofia	273.0	551.0	105.8	31.7	74.1			
	Sevlievo	248.0	57.0	Municipal WWTP - Sevlievo	136.0	43.0	8.9	2.7	6.2			
	Troyan	340.0	82.0	Municipal WWTP - Troyan	121.0	56.0	17.0	5.1	11.9			
	Gorna Oriahovitza	836.0	284.0	Municipal WWTP Gorna Oryahovitza & Lyaskovetz	464.0	247.0						
	Montana	489.0	131.0	Municipal WWTP - Montana	243.0	88.0	18.0	5.4	12.6			
	Popovo	169.0	42.0	Municipal WWTP - Popovo	81.0	31.0	8.7	2.6	6.1			
	Silistra	168.0	55.0	Municipal WWTP - Silistra	22.0	92.0	4.6	1.4	3.2			
	Rousse	1,643.0	405.0	WWTP Russe	603.0	219.0						
	Svistov	215.0	51.0	WWTP Svishtov	68.0	20.0						
	Vidin	313.0	93.0	WWTP Vidin	243.0	82.0						
	Lom	190.0	76.0	WWTP Lom	146.0	68.0						
				Construction of solid waste landfill in Pleven or the river Vit								
				Kostinbrod and Bojuristhe - several small towns								
				Municipal WWTP - Levski	152.0	10.0	10.3	3.1	7.2			
		Pleven	305.0	80.0								
	Veliko Tarnovo	181.0	36.0									
	Dobrich	178.0	21.0									
	Gabrovo	59.0	16.0									



				hydrometric system for the Karaissen irrigation system								
				Adoption of EU methods for assesment o pollution load from non-point sources								
	<b>Subtotal</b>	<b>0.0</b>	<b>0.0</b>	<b>Subtotal</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>			
	Others	0.0	0.0	Others	0.0	0.0	0.0	0.0	0.0			
	<b>Total Agriculture</b>	<b>0.0</b>	<b>0.0</b>	<b>Total Agriculture</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>			
Wetl				Balta Potelu	439.0	44.0	5.3	0.9	4.4			
				Area of Bulgarian Danube Islands	750.0	75.0	9.0	1.5	7.5			
				Balta Greaca / Tutrakan	675.0	67.5	8.1	1.4	6.8			
				<b>Subtotal</b>	<b>1,864.0</b>	<b>186.5</b>	<b>22.4</b>	<b>3.7</b>	<b>18.6</b>			
				Others	0.0	0.0	0.0	0.0	0.0			
				<b>Total Wetlands</b>	<b>1,864.0</b>	<b>186.5</b>	<b>22.4</b>	<b>3.7</b>	<b>18.6</b>			

<b>Emissions from Mointored Point Sources*</b>	<b>12,250.7</b>	<b>2,894.8</b>	<b>Total Pollution Reduction - Pollution Reduction Programme</b>	<b>5,223.0</b>	<b>1,845.5</b>	<b>318.0</b>	<b>109.4</b>	<b>208.6</b>
--	-----------------	----------------	--	----------------	----------------	--------------	--------------	--------------

Estimated Emissions from Diffuse Sources**	16,000.0	2,500.0
Estimated Emissions from Point Sources**	18,000.0	3,600.0
<b>Total Estimated Country Emissions</b>	<b>34,000.0</b>	<b>6,100.0</b>

\* considered as emissions from 75% of point sources within the Danube Basin in the Country  
 \*\* source : Transboundary Analysis

**COUNTRY: ROMANIA**

**Existing Situation**

**Action - Pollution Reduction Programme**

Sector	Emission Source / Hot Spot	Nutrient Load		Project / Hot Spot	Expected Reduction		Costs			Time frame	Financial status
		N	P		N	P	Total Investments	Incremental	Baseline		
		t/y			t/y		mil USD				
Municip.	Craiova	1,270.0	158.0	WWTP Craiova	597.0	245.0	32.0	1.6	30.4		
	Braila	420.0	65.7	WWTP of Braila Nord city	822.0	0.0	21.9	6.6	15.3		
	Galati	746.0	91.6	WWTP of Galati city	812.0	275.0	29.5	8.9	20.7		
	Zalau	110.0	24.4	WWTP of Zalau city	111.6	33.6	7.0	3.5	3.5		
	Zalau	20.4	4.2								
	Resita	78.5	17.4	Development of WWTP of Resita city	241.0	527.0	3.5	3.2	0.4		
	Resita	122.5	24.0								
	Campulung	83.0	12.0	Development of WWTP of Campulung Muscel City	37.0	18.0	1.5	1.4	0.2		
	Deva	209.0	42.0	Development of WWTP of Deva city	63.2	31.4	5.6	5.0	0.6		
	Timisoara	676.0	97.7	Expansion of WWTP of Timisoara city	444.0	101.0	1.5	1.4	0.2		
	Timisoara	316.0	75.0								
	Iasi	368.0	60.4	WWTP of Iasi city	165.0	354.0	1.9	1.7	0.2		
	Bucuresti	10,872.0	2,218.0	WWTP of the city of Bucharest	7,509.0	1,744.0	250.0	225.0	25.0		
				Expansion of WWTP from Mangalia city			5.4	2.7	2.7		
				Guidelines of designing and operation of urban landfill			0.1		0.1		
		<b>subtotal</b>	<b>15,291.4</b>	<b>2,890.4</b>	<b>subtotal</b>	<b>10,801.8</b>	<b>3,329.0</b>	<b>359.9</b>	<b>260.8</b>	<b>99.1</b>	
	Others	9,682.9	1,708.4	Others	0.0	0.0	0.0	0.0	0.0		
	<b>Total Municipalities</b>	<b>24,974.4</b>	<b>4,598.8</b>	<b>Total Municipalities</b>	<b>10,801.8</b>	<b>3,329.0</b>	<b>359.9</b>	<b>260.8</b>	<b>99.1</b>		

	2	8	.8	0					
Indu st.	Colorom Codlea	9.1		WWTP of SC COLOROM CODLEA SA			25.3	7.6	17.7
	Antibiotice Iasi	11.5	0.3	WWTP expansion at SC ANTIBIOTICE SA - Iasi	8.4	2.5	1.8	0.9	0.9
	U.P.S. Govora	175.0		Works for pollution reduct.at UPS GOVORA S.A			13.6	2.7	10.9
	Siderca Calarasi			Modernising the secondary treatment of WWTP – S.C. SIDERCA - CALARASI			2.5	1.3	1.3
	Petrobrazi Ploiesti			Modernising WWTP for oil products and slug recovery at PETROBRAZI – PLOIESTI			2.8	1.4	1.4
	Arpechim Pitesti	92.1	3.5	WWTP at ARPECHIM S.A PITESTI			13.9	7.0	7.0
	Sinteza Oradea			Removal of chromium, zinc and phenols from the wastewater – SINTEZA Oradea			0.3	0.2	0.2
	Somes Dej	130.0		Modernization of wastewater treatment at SC SOMES SA DEJ	91.0		0.6	0.3	0.3
	Phoenix Baia Mare			Completion and modernisation of WWTP at Phoenix Baia Mare			1.3	0.4	0.9
	Oltchim Rm. Valcea	548.0		Modernisation of water treatment installation at SC OLTCHIM SA			0.7	0.1	0.5
	Fibrex Savinesti	831.0		Modernisation and completion of the WWTP at FIBREX Savinesti			1.2	0.6	0.6
	Sidex Galati	1,078.0	4.5	Modernizing of the industrial WWT at SIDEX Galati	754.6	10.6	73.2	36.6	36.6
	Romfosfochim	11.0	3.2	Ecological reconstruction of polluted zone around SC ROMFOSFOCHIM SA Valea Calugareasca			2.8	0.6	2.2
	Indagrara Arad	400.0		Modernisation of WWTP at SC INDAGRA SA Arad	280.0		1.0	0.5	0.5
	Letea Bacau			Modernisation of installations from SC LETEA SA.- Bacau	551.0	155.0	1.5	0.8	0.8
				WWTP at SC CELOHART DONARIS - Braila			2.7	0.8	1.9
				Expansion of discharging facilities and final disposal of waste at SC UPSOM SA OCNA Mures			0.1	0.0	0.1
				Modernising WWTP CLUJANA S.A – Cluj-Napoca			3.0	1.5	1.5
				WWTP system at VIDRA S.A.-			1.2	0.4	0.8

			ORASTIE								
	Oltchim Rm. Valcea	2,206.0									
	Azomures Tg.Mures	1,641.0									
	Nitramonia Fagaras	1,253.0	0.1								
	Doljchim Craiova	992.0									
	CICH Tr. Magurele	990.0	39.0								
	<b>Subtotal</b>	<b>10,367.7</b>	<b>50.6</b>	<b>Subtotal</b>	<b>1,685.0</b>	<b>168.1</b>	<b>149.4</b>	<b>63.5</b>	<b>86.0</b>		
	Others	1,616.2	34.9	Others	0.0	0.0	105.2	0.7	104.5		
	<b>Total Industry</b>	<b>11,983.9</b>	<b>82.0</b>	<b>Total Industry</b>	<b>1,685.0</b>	<b>168.1</b>	<b>254.7</b>	<b>64.2</b>	<b>190.5</b>		
Agric	Comtom Tomesti	38.0	0.3	Capacity increase of WWTP of COMTM TOMESTI	26.6		10.0	9.0	1.0		
	Comsuin Ulmeni	472.0	1.3	Expansion of WWTP at SC ULMENI	330.0	0.9	1.0	0.5	0.5		
	Suinprod Independenta	323.0		WWTP at SC SUINPROD Independanta - jud. Galati	226.0		0.8	0.2	0.6		
	Comsuin Beregsau	818.0		WWTP at CONSUIN BERECSAU Timis	573.0		0.6	0.2	0.4		
				Agricultural turning to good account of zootechnical waste at ROMSUIN TEST PERIS	245.0		1.3	0.4	0.9		
	Comsuim Birda	1,033.0									
	Braigal Braila	892.0									
	Combilcarial Cazanesti	766.0									
	Agricola Bacau	693.0									
	Agrocomsuin Bontida	620.0									
	<b>Subtotal</b>	<b>5,655.0</b>	<b>1.6</b>	<b>Subtotal</b>	<b>1,400.6</b>	<b>0.9</b>	<b>13.7</b>	<b>10.3</b>	<b>3.4</b>		
	Others	578.7	21.6	Others	0.0	0.0	25.9	0.3	25.6		
	<b>Total Agriculture</b>	<b>6,233.7</b>	<b>23.2</b>	<b>Total Agriculture</b>	<b>1,400.6</b>	<b>0.9</b>	<b>39.6</b>	<b>10.6</b>	<b>29.0</b>		
Wett.				Balta Potelu	1,024.0	102.0	12.3	2.0	10.2		
				Area of Bulgarian Danube Island	750.0	75.0	9.0	1.5	7.5		
				Balta Greaca / Tutrakan	2,700.0	270.0	32.4	5.4	27.0		
				Kalarasch	750.0	75.0	9.0	1.5	7.5		
				Lower Prut	930.0	93.0	11.2	1.9	9.3		
				Polder Pardina	2,250.0	225.0	27.0	4.5	22.5		

Wetl.				<b>Subtotal</b>	<b>8,404.</b>	<b>840.0</b>	<b>100.9</b>	<b>16.8</b>	<b>84.0</b>		
					<b>0</b>						
				<b>Others</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>		
				<b>Total Wetlands</b>	<b>8,404.</b>	<b>840.0</b>	<b>100.9</b>	<b>16.8</b>	<b>84.0</b>		
					<b>0</b>						

<b>Emissions from Mointored Point Sources*</b>	<b>43,191.</b>	<b>4,704.</b>	<b>Total Pollution Reduction - Pollution Reduction Programme</b>	<b>22,291</b>	<b>4,338.</b>	<b>755.1</b>	<b>352.4</b>	<b>402.7</b>
	<b>8</b>	<b>0</b>		<b>.4</b>	<b>0</b>			

Estimated Emissions from Diffuse Sources**	157,00	15,600
	0.0	.0
Estimated Emissions from Point Sources**	74,000.	12,000
	0	.0
<b>Total Estimated Country Emissions</b>	<b>231,00</b>	<b>27,600</b>
	<b>0.0</b>	<b>.0</b>

\* considered as emissions from 75% of point sources within the Danube Basin in the Country

\*\* source : Transboundary Analysis

**COUNTRY: MOLDOVA**

**Existing Situation**

**Action - Pollution Reduction Programme**

Sector	Emission Source / Hot Spot	Nutrient Load		Project / Hot Spot	Expected Reduction			Costs			Time frame
		N	P		N	P	Total Investments	Incremental	Baseline		
		t/y			t/y		mil USD				
Municip.	Ungheni	122.6	7.5	Installation of Nutrient Removal Facilities at the WWTP Ungheni	464.0						
	Cantemir	13.9	1.8	Installation of second and advanced stages of treatment at the WWTP in Cantemir	13.9						
				WWTP Comrat & Taraclia	1.5						
				Water and sewage Completion Programme			54.0	2.7	51.3		
				Pilot project on sewerage systems in rural area							
		Glodeni	64.1	3.6							
		Briceni (Briceni)	31.1	4.0							
	Cahul	20.2	8.3								
	<b>subtotal</b>	<b>251.9</b>	<b>25.2</b>	<b>subtotal</b>	<b>479.4</b>	<b>0.0</b>	<b>54.0</b>	<b>2.7</b>	<b>51.3</b>		
	Others	32.0	11.2	Others	0.0	0.0	0.0	0.0	0.0		
	<b>Total Municipalities</b>	<b>283.9</b>	<b>36.4</b>	<b>Total Municipalities</b>	<b>479.4</b>	<b>0.0</b>	<b>54.0</b>	<b>2.7</b>	<b>51.3</b>		
Indust.				Giurgiulesti Oil Terminal			38.0	7.6	30.4		
				Vulcanesti pesticide dump site							
				Utilization of toxic industrial waste							
				Rehabilitation of waste water facilities in industrial enterprises							
				Modernization of waste water treatment facilities and improving waste management							

	<b>Subtotal</b>	<b>0.0</b>	<b>0.0</b>
	Others		
	<b>Total Industry</b>	<b>0.0</b>	<b>0.0</b>
Agri c.			
	<b>Subtotal</b>	<b>0.0</b>	<b>0.0</b>
	Others		
	<b>Total Agriculture</b>	<b>0.0</b>	<b>0.0</b>
Wetl			

at wineries					
<b>Subtotal</b>	<b>0.0</b>	<b>0.0</b>	<b>38.0</b>	<b>7.6</b>	<b>30.4</b>
Others	0.0	0.0	0.0	0.0	0.0
<b>Total Industry</b>	<b>0.0</b>	<b>0.0</b>	<b>38.0</b>	<b>7.6</b>	<b>30.4</b>
Water Resources Development Project			12.0	0.6	11.4
Animal waste management Edinet pig farm					
First Agriculture Project			18.5		18.5
Rural Finance Project			15.0		15.0
Optimization of land (anti- erosion point of view)					
<b>Subtotal</b>	<b>0.0</b>	<b>0.0</b>	<b>45.5</b>	<b>0.6</b>	<b>44.9</b>
Others	0.0	0.0	0.0	0.0	0.0
<b>Total Agriculture</b>	<b>0.0</b>	<b>0.0</b>	<b>45.5</b>	<b>0.6</b>	<b>44.9</b>
Lower Prut	1,395 .0	140.0	16.7	2.8	14.0
Liman Lakes	585.0	59.0	7.0	1.2	5.9
<b>Subtotal</b>	<b>1,980 .0</b>	<b>199.0</b>	<b>23.8</b>	<b>4.0</b>	<b>19.8</b>
Others	0.0	0.0	0.0	0.0	0.0
<b>Total Wetlands</b>	<b>1,980 .0</b>	<b>199.0</b>	<b>23.8</b>	<b>4.0</b>	<b>19.8</b>

<b>Emissions from Mointored Point Sources*</b>	<b>283.9</b>	<b>36.4</b>
--	--------------	-------------

<b>Total Pollution Reduction - Pollution Reduction Programme</b>	<b>2,459 .4</b>	<b>199.0</b>	<b>161.3</b>	<b>14.9</b>	<b>146.4</b>
--	---------------------	--------------	--------------	-------------	--------------

Estimated Emissions from Diffuse Sources**	12,000. 0	2,000. 0
Estimated Emissions from Point Sources**	1,000.0	200.0
<b>Total Estimated Country Emissions</b>	<b>13,000. 0</b>	<b>2,200. 0</b>

\* considered as emissions from 75% of point sources within the Danube Basin  
in the Country

\*\* source : Transboundary  
Analysis

**COUNTRY: UKRAINE**

**Existing Situation**

Sector	Emission Source / Hot Spot	Nutrient Load	
		N	P
		t/y	
Municip.	Uzhgorod	326.7	130.1
	Kolomiya	106.0	34.5
	Chernivtsi	145.1	18.3
	Izmail	213.4	37.5
	Mukachevo	95.1	48.9

**Action - Pollution Reduction Programme**

Project / Hot Spot	Expected Reduction		Costs		Time frame	Financial status
	N	P	Total Investments	Incremental		
	t/y		mil USD			
Extension and reconstruction of Waste Water Treatment Facilities of Uzhgorod (3 turn)	107.0		25.0	7.5	17.5	
Extension and reconstruction of the Kolomiya Waste Water Treatment Facilities up to 45,000 m3 capacity	71.0	22.0	8.8	4.4	4.4	
Additional engineering networks and facilities for the processing for the Kolomiya WWTP						
Processing and raise of environmental safety of mud formations in "Vodokanal" enterprise (Chernivtsi)	29.0	3.6	1.0	0.2	0.8	
Sanitation, design and demonstration reconstruction of water supply and canalization facil. in Chernivtsi area			0.4	0.1	0.3	
Construction of the polygon for storage of solid waste in Chernivtsi (2nd stage).			1.7	0.3	1.3	
Expansion and reconstruction of Chernivtsi canalization system including increase of its daily capacity up to 200,000 m3	53.0	16.0	1.6	0.3	1.3	
Extension of the Waste Water Treatment Facilities in the Izmail Paper Factory (city WWTP)	133.0	24.0	3.6	1.8	1.8	
WWTP Mukachevo	25.0	13.0				

			Priority measures on protection against flooding and improvement of sanitary and epidemic situation in Vilково			8.5	0.4	8.1		
			Kiliya protection against flooding (emergency measures)			1.9	0.1	1.8		
			Creation of the Waste Water Treatment Facilities in Reni, Reni Seaport			2.8	0.1	2.7		
			Construction of Vilково Waste Water Treatment Facilities			6.5	0.3	6.2		
			Vilково city-channels erect reconstruction			2.4	0.1	2.3		
			Pilot implementation of the EU Directive on the municipal WWT including the development of the tasks for the economic burden estimation							
	<b>subtotal</b>	<b>886.3</b>	<b>269.3</b>	<b>subtotal</b>	<b>418.0</b>	<b>78.6</b>	<b>64.1</b>	<b>15.7</b>	<b>48.4</b>	
	Others	0.0	0.0	Others	0.0	0.0	0.0	0.0	0.0	
	<b>Total Municipalities</b>	<b>886.3</b>	<b>269.3</b>	<b>Total Municipalities</b>	<b>418.0</b>	<b>78.6</b>	<b>64.1</b>	<b>15.7</b>	<b>48.4</b>	
Indu st.	Forest exploration factory, V.Bichkov			Complex utilization of timber with introduction of environmentally friendly technologies in Velykobychkiv Wood Chemistry Enterprise		7.5	5.0	0.3	4.8	
	Forest exploration factory, Teresva			Complex utilization of timber with introduction of environmentally friendly technologies in Teresva Woodprocessing Enterprise.		30.0	5.0	0.3	4.8	
	Cardboard factory, Rakhiv			Rakhiv Cardboard Factory, Reconstruction of existing and construction of new WWT facilities and accumulations pounds, improvement of technological processes						
	Cardboard - Parer factory, Izmail									
					Implementation of the extended project of sewer erection designated for Luzhany industrial area waste water discharge and implem. of w. water purification technology at Luzhany Pilot		1.4	0.3	1.1	

			Distillery Plant							
	<b>Subtotal</b>	<b>0.0</b>	<b>0.0</b>	<b>Subtotal</b>	<b>0.0</b>	<b>37.5</b>	<b>11.4</b>	<b>0.8</b>	<b>10.6</b>	
	Others	0.0	0.0	Others	0.0	0.0	0.0	0.0	0.0	
	<b>Total Industry</b>	<b>0.0</b>	<b>0.0</b>	<b>Total Industry</b>	<b>0.0</b>	<b>37.5</b>	<b>11.4</b>	<b>0.8</b>	<b>10.6</b>	
Agri			Reconstruction of irrigation systems taking into account their impact on the environment							
c.			Rehabilitation of deteriorated pastureland							
			Construction of embankment on Tysa River in Tyachiv			0.9	0.2	0.7		
			Animal farms in Kyliya region - Put Lenina and Pgranichnik							
			Establish a network of training consulting centers for land users							
			Development of a methodology and legislative basis for restructuring cattle breeding farms							
			Reduction of nutrients load from diffuse sources in Ukraine							
			Training center for the sustainable land use (ecological farming)							
			Introduction of practices for water re-use and waste recycling in technological processes as pilot projects							
	<b>Subtotal</b>	<b>0.0</b>	<b>0.0</b>	<b>Subtotal</b>	<b>0.0</b>	<b>0.0</b>	<b>0.9</b>	<b>0.2</b>	<b>0.7</b>	
	Others	0.0	0.0	Others	0.0	0.0	0.0	0.0	0.0	
	<b>Total Agriculture</b>	<b>0.0</b>	<b>0.0</b>	<b>Total Agriculture</b>	<b>0.0</b>	<b>0.0</b>	<b>0.9</b>	<b>0.2</b>	<b>0.7</b>	
Wetl			Liman Lakes	1,365	137.0	16.4	2.7	13.7		
				.0						
			Ukrainian part of Danube Delta	1,000	100.0	12.0	2.0	10.0		
				.0						
	<b>Subtotal</b>			<b>2,365</b>	<b>237.0</b>	<b>28.4</b>	<b>4.7</b>	<b>23.7</b>		
				.0						
	Others	0.0	0.0	Others	0.0	0.0	0.0	0.0	0.0	
	<b>Total Wetlands</b>			<b>2,365</b>	<b>237.0</b>	<b>28.4</b>	<b>4.7</b>	<b>23.7</b>		
				.0						
	<b>Emissions from Mointored Point</b>	<b>886.3</b>	<b>269.3</b>	<b>Total Pollution Reduction - Pollution Reduction Programme</b>	<b>2,783</b>	<b>353.1</b>	<b>104.7</b>	<b>21.4</b>	<b>83.3</b>	
					.0					

<b>Sources*</b>									
-----------------	--	--	--	--	--	--	--	--	--

Estimated Emissions from Diffuse Sources**	31,000 .0	4,600 .0
Estimated Emissions from Point Sources**	3,000. 0	1,100 .0
<b>Total Estimated Country Emissions</b>	<b>34,000 .0</b>	<b>5,700 .0</b>

\* considered as emissions from 75% of point sources within the Danube Basin in the Country

\*\* source : Transboundary Analysis



## **ANNEX 2**

# **WORKING PAPER ON POLICIES FOR POLLUTION REDUCTION WITH PARTICULAR ATTENTION TO NUTRIENT REDUCTION IN THE DANUBE RIVER BASIN COUNTRIES**

**UNDP / GEF**

**WORKING PAPER  
ON  
POLICIES FOR POLLUTION REDUCTION  
WITH PARTICULAR ATTENTION TO  
NUTRIENT REDUCTION  
IN THE DANUBE RIVER BASIN COUNTRIES**

**DRAFT**

**22 SEPTEMBER 1999**

**PREPARED BY R. WANNINGER**

## **LIST OF CONTENTS**

<b>0</b>	<b>Introduction</b>
<b>1</b>	<b>Germany</b>
<b>2</b>	<b>Austria</b>
<b>3</b>	<b>Czech Republic</b>
<b>4</b>	<b>Slovak Republic</b>
<b>5</b>	<b>Hungary</b>
<b>6</b>	<b>Slovenia</b>
<b>7</b>	<b>Croatia</b>
<b>8</b>	<b>Bosnia and Herzegovina</b>
<b>9</b>	<b>Yugoslavia</b>
<b>10</b>	<b>Bulgaria</b>
<b>11</b>	<b>Romania</b>
<b>12</b>	<b>Moldova</b>
<b>13</b>	<b>Ukraine</b>
<b>14</b>	<b>Summarizing Conclusions</b>

## **LIST OF ABBREVIATIONS**

<b>DRB</b>	<b>Danube River Basin</b>
<b>DPRP</b>	<b>Danube Pollution Reduction Program</b>
<b>PE</b>	<b>Population Equivalent</b>
<b>WWTP</b>	<b>Waste water treatment plant</b>
<b>MoE</b>	<b>Ministry of Environment</b>
<b>PE</b>	<b>Population Equivalent</b>



## **0 INTRODUCTION**

The task of this working paper is to provide an overview on policies, status of legislation, programs and major measures / activities for pollution reduction with particular attention to nutrient reduction in the Danube River Basin (DRB) countries.

The working paper is based on information from the National Review Reports, elaborated in the framework of the GEF-assisted Danube Pollution Reduction Program (DPRP), and particularly on information from a complementing questionnaire which has been sent to the National Coordinator of each of the 13 DRB countries. Completed questionnaire have been returned until now from the following 8 DRB countries: Germany, Austria, Czech Republic, Hungary, Croatia, Bosnia & Herzegovina, Bulgaria and Ukraine.

The country specific information, as stated in the following sections separately for each country, is structured as follows:

- (1) Policy objectives, principles and priorities for pollution reduction with particular attention to nutrient reduction;
- (2) Status of legislation dealing with nutrient reduction;
- (3) Programs dealing with nutrient reduction;
- (4) Major measures / activities related to nutrient reduction.

## **1 GERMANY**

### **1.1 Policy Objectives, Principles and Priorities for Pollution Reduction / Nutrient Reduction**

During the previous decades Germany has established a comprehensive hierarchic system of objectives, principles and priorities for pollution reduction both on national level and - due to the distinct federal structure of the country - supplementary on "state" level. Regarding pollution reduction the policy objectives and principles comply fully with international standards and cover all requirements of the relevant EU directives.

### **1.2 Status of Legislation Dealing with Nutrient Reduction**

Legislation related to pollution, respectively nutrient reduction is in full compliance with the requirements of EU legislation and the relevant international conventions, signed by Germany.

National legislation is composed of a comprehensive set of laws and regulations on national level and a relatively high number of laws and regulations on state level. The "water resources policy act" gives the frame conditions for water management and water control on national level; the federal states have their own water acts.

Altogether environment related legislation has reached an outstanding standard even in comparison to other Western European countries.

### **1.3 Programs Dealing with Nutrient Reduction**

On state level there are a multitude of particular programs for particular issues mainly aiming at reduction /optimization of the utilization of agrochemicals and thus supporting reduction of pollution / nutrients originating from non-point sources.

The most effective program directly related to nutrient reduction is the “provision of public subsidies for municipal waste water collection and treatment systems”; with an annual budget of about USD 250 million for the DRB area in Germany.

### **1.4 Major Measures / Activities Related to Nutrient Reduction**

In fulfilling the requirements of the relevant EU directives and the requirements of the national legislation a multitude of projects, measures and activities related to nutrient reduction have been implemented over a long period of time and have actually led to exceptionally high standards of relevant infrastructure and administrative / institutional framework in international comparison.

Regarding waste water treatment there are about 1250 municipal WWTPs in the DRB area of Germany; with at least complete biological treatment standard and a capacity of about 20 million PE. About 89 % of the population is connected to municipal WWTP with complete biological treatment standard.

A matter of concern remains the pollution originating from non-point sources, mainly from agriculture.

## **2 AUSTRIA**

### **2.1 Policy Objectives, Principles and Priorities for Pollution Reduction / Nutrient Reduction**

Austria has established a comprehensive hierarchic system of objectives, principles and priorities for pollution reduction which fully complies with international standards and covers all requirements of the relevant EU directives. The national policy for nutrient reduction is based on the following principles:

- \* Clear, substantially and formally harmonized legal provisions for controlling and minimizing point water pollution by means of the following control elements:
  - obligatory licensing and obligatory restriction of permits for waste water discharges;
  - common (minimum) emission limitation for the various branches of industry, based on uniform BAT regulations;
  - regular up-dating of emission limitations;
- \* Common regulations and basic conditions for the reduction of pollution originating from diffuse sources, including agricultural sources;
- \* Joint complementary and binding (minimum) in-stream quality limitation (minimum quality objectives) for surface waters based on physical, chemical, and biological parameters;

- \* Joint prevention regulations against activities that jeopardize water quality, especially with substances that are considered dangerous because of their potential risk for ground and surface water.

## **2.2 Status of Legislation Dealing with Nutrient Reduction**

Legislation related to pollution, respectively nutrient reduction is in full compliance with the requirements of EU legislation and the relevant international conventions, signed by Austria; it is appropriately concretized by national legislation and regulations.

Also in Austria environment related legislation has reached a leading standard in international comparison.

## **2.3 Programs Dealing with Nutrient Reduction**

Regarding point sources of pollution the program for construction / extension / improvement of municipal WWTP follows the requirements of the EU Council Directive 91/271/EEC concerning urban waste water treatment. Newly constructed WWTPs have to fulfil the requirements immediately; for existing WWTP >2000 PE adaptation periods are envisaged (for P-tot up to 01.01.2001, for N-tot up to 01.01.2005).

Regarding diffuse sources of pollution from agriculture the requirements of the EU Council Directive 91/676/EEC concerning the protection of water against pollution caused by nitrates from agricultural sources are in application since 1995, when Austria became a member of the EU. Further binding requirements are formulated by the national "program for an environment oriented agriculture".

## **2.4 Major Measures / Activities Related to Nutrient Reduction**

In fulfilling the requirements of the relevant EU directives and the requirements of the national legislation a multitude of projects, measures and activities related to nutrient reduction have been implemented and have led to a high standard in relevant infrastructure and administrative / institutional framework in international comparison.

Regarding waste water treatment there are 1093 biological WWTPs (with a capacity of about 15.2 million PE) and 59 mechanical WWTPs; the degree of connected inhabitants is 72%.

A matter of concern remains the pollution originating from non-point sources, mainly from agriculture.

# **3 Czech Republic**

## **3.1 Policy Objectives, Principles and Priorities for Pollution Reduction / Nutrient Reduction**

The State Environmental Policy of the Czech Republic, approved in 1995 and up-dated 1999, is focused on the strict implementation of sustainable development principles in all sectors and harmonization of the Czech legislation with EU legislation. The new concept aims at gradually shifting from normative tools to economical and voluntary ones.

Highest priority concerns protection of surface and ground waters for human consumption, protected areas and wetlands; second priority is given to stretches of watercourses which are classified as "heavily polluted".

The main short-term policy issues from the nutrient reduction point of view can be outlined as follows:

- \* Elaboration of new Water Act and following regulations suited to enforcing appropriate principles for water management and protection;
- \* Implementation of WWTP in all municipal and industrial hot spots;
- \* Implementation of reconstruction/extension of municipal WWTPs with >10 000 PE where necessary, and construction of WWTPs in municipalities with > 2000 PE;
- \* Enforcement of best available technology in industry;
- \* Development of programs for the introduction of best available practices in agriculture/forestry;
- \* Development programs for protection of threatened ground water sources;
- \* Initiation of studies aiming at revitalization of river systems and elaboration of strategies on wetland protection;
- \* Enforcement of principles for minimum ecological flows in water courses;
- \* Complementation of present monitoring system in terms of priority pollutants;
- \* Elaboration of a concept for education/training system in the water management sector.

Most of these issues have already been started or are currently in the phase of preparation.

### **3.2 Status of Legislation Dealing with Nutrient Reduction**

The most essential laws and regulations, dealing with nutrient pollution reduction and prevention, are:

- \* Act No 138/1973 Coll. (Water Act) and Amendment No 14/1998 Coll., according to which all waters used for human consumption are protected by "protection areas" where agricultural activities are restricted;
- \* Governmental Decree No 82/1999 Coll., establishing parameters and limits of acceptable degree of water pollution (differentiated for municipal, industrial and agricultural waste water discharge);
- \* Act No 58/1998 Coll. on charges for wastewater discharge to surface waters;
- \* Intimation of the Ministry of Environment No.137/1999 Coll. to the Water Act establishing the list of water reservoirs designated for drinking water production and principles for specification of protected areas of water resources;
- \* Act No 156/1998 Coll. on fertilizers.

The most essential laws and regulations currently in the phase of discussion / preparation are:

- \* New Water Act corresponding to EU regulations is on the "legislative schedule" of the Czech Government for the first quarter of 2000;
- \* Amendment to the Act No 156/1998 Coll. on fertilizers corresponding to the requirements of the EU Directives 91/676/EEC concerning the protection of waters against pollution caused by nitrates from agricultural sources;
- \* Amendment of Act No 86/278/EEC on the protection of environment and in particular of the soil, when sewage sludge is used in agriculture;
- \* Adjustment of all laws and regulations required to reach full compatibility with EU legislation.

Taking into account the significant improvements achieved during the previous few years, it is expected that Czech Republic which is one of the priority candidate to join the EU before the year 2005 can successfully achieve the required harmonization of national environmental legislation with EU legislation in time; especially if this ambitious task is further supported by international co-funding.

### **3.3 Programs Dealing with Nutrient Reduction**

#### **(i) Ongoing programs:**

- \* Inventory of essential pollution sources (municipal, industrial and agricultural) by main river basins (Elbe Project, Oder Project, Morava Project); performed by the MoE; identification of priorities and measures for improvement;
- \* Five years research program (1998-2002) "restriction of surface and ground water pollution from diffuse (non-point) sources in the Czech Republic"; performed under the management of the MoE; the result will be the proposal for the implementation of the 91/676/Eec Directive in the Czech Republic, as the basic strategy for nutrient reduction from diffuse sources.
- \* Voluntary agreement from 1995 between the Ministry of Environment and the Association of Soap and Detergents Producers on the reduction of environmental impacts of their products; by this agreement the producers are bound not to exceed a content of 5% of phosphorus in their products;
- \* Support from the Ministry of Agriculture for construction of large municipal WWTPs; in accordance with it's responsibility in issues of water supply and waste water treatment;
- \* Support from the State Environmental Fund for construction of municipal WWTPs with approximately 2000-10000 PE in form of grants or soft loans;
- \* Support from MoE for construction of small municipal WWTP with 500-2000 PE through the program "small environmental actions in the water sector"; eligible are smaller municipalities in the case of extraordinary environmental impacts;
- \* Support of wetlands rehabilitation by the "program of river systems rehabilitation"; managed by the MoE.

(ii) **Planned programs:**

- \* Annex to the voluntary agreement from 1995 between the Ministry of Environment and the Association of Soap and Detergents Producers on the reduction of environmental impacts of their products, with stricter requirements on phosphorus content in detergents (2000);
- \* Introduction of the concept of appropriate agricultural practices in the Czech Republic (2000);
- \* Evaluation of the present monitoring network/system and its appropriate extension;
- \* Identification of vulnerable and sensitive areas according to 91/676/EEC and 91/271/EEC;
- \* Elaboration of action programs for supplementary measures concerning nitrates reduction;
- \* Improvement of the institutional basis, including control activities and special education/training centers for appropriate agricultural practices.

### 3.4 Major Measures / Activities Related to Nutrient Reduction

- \* **Municipal pollution sources:** The ten largest municipalities (> 20 000 PE) located in the Morava river basin are equipped with WW'TPs with nutrient (N, P) removal, or extension of WWTPs is in progress. Another nine municipalities with >20000 PE have WWTPs, but some indicators exceed the prescribed limits. These WWTPs are on the national list of municipal "hot spots" determined for reconstruction or extension. For the WWTP Olomouc, still mentioned in the list of "hot spots", the third degree of wastewater treatment has been completed recently.
- \* **Industrial pollution sources:** Measures for nutrient reduction are currently in progress in the tanning and foodstuff industries. Two factories, the phosphate factory Fosva Postorna and the foodstuff factory Harne Babice have recently completed the construction of their waste water treatment facilities and fulfil now the prescribed limits.
- \* **Monitoring:** The results of the national monitoring of surface waters indicate a significant decrease in utilization of nutrients as well as a decrease in content of nutrients in surface waters; (N-inorg. decreased from 8400 t/year in 1990 to 6000 t/year in 1998, P-tot. decreased from 500 t/year in 1992 to 300 t/year in 1998).

## 4 **Slovak Republic** *(to be completed after receipt of the filled questionnaire)*

### 4.1 Policy Objectives, Principles and Priorities for Pollution Reduction / Nutrient Reduction

The long-term objectives of national environmental policy are as follows:

- \* Establishment of economic barriers and systems, which will have preventive effects;

- \* Application of increased protection and rational exploitation of natural sources;
- \* Harmonization of economic, environmental and social interests;
- \* Prohibition of ground water use for other than drinking purposes;
- \* Ensurance of appropriate treatment of 80-90% of waste water discharge;
- \* Reduction of pollution of watercourses.

The national targets for water pollution reduction in the DRB, as set up in the Slovak National Action Plan (NAP), focus mainly on three problems: (i) high load of N and P nutrients and eutrophication; (ii) changes in the regimes of the sediments flow and transport; (ii) contamination with harmful substances, including oil substances.

According to the NAP the following measures will be necessary: (i) revitalization of the streams and wetlands; (ii) adequate management to maximize their accumulation capability for the N and P nutrients; and (iii) at the same time to maintain their natural health state and biodiversity.

In this context first priority is set to reduce municipal emissions, which usually contribute dominantly to the total nutrient load.

The reduction of diffuse pollution is considered difficult, as it would need complex and comprehensive measures in legislation and cross-sectional co-ordination in setting priorities regarding economic and environmental policies.

## **4.2 Status of Legislation Dealing with Nutrient Reduction**

The environmental legislation is mainly formed by the following acts:

- \* Act on the National Environment, 1991;
- \* Act on Nature and Countryside Protection, 1994;
- \* Environmental Impact Assessment Act, 1994;
- \* The Water Act (1973) and the Act on State Administration in Water Management (1974) have been amended in 1993 and have brought significant changes in the responsibilities of various public authorities.

Today environmental legislation, especially regarding effective public participation, has not yet recognized the principles already incorporated in the legislation of western democracies.

## **4.3 Programs Dealing with Nutrient Reduction**

## **4.4 Major Measures / Activities Related to Nutrient Reduction**

# **5 Hungary**

## **5.1 Policy Objectives, Principles and Priorities for Pollution Reduction / Nutrient Reduction**

According to the National Environmental Program (1997-2002) it is an issue of high priority to decrease nitrate and phosphorous load of protected water resources vulnerable to nutrients; these areas are priority areas for WWTP with improved (third degree) treatment standards.

According to the EU guidelines wastewater treatment should adequately be solved in settlements with more than 15000 inhabitants by the year 2000 and in settlements of more than 2000 inhabitants by the year 2005. Hungary has to fulfil these tasks by the 2010. The long-term objective of the waste water treatment program is to achieve 67% of sewage collection and treatment all over the country, with special emphasis to nutrient reduction at vulnerable water resources.

As approximately half of the N and P pollution in the country comes from non-point sources it is clearly recognized that this is a main area of concern, requiring substantial improvement.

Due to the lack of public subsidies, nutrient pollution from agriculture has dropped substantially and is currently responsible for not more than 15% of total nutrient pollution in the country. Recently the use of pesticides and artificial fertilizers became so low that a further reduction seems very difficult; thus the basic objective is to maintain the current levels and to prevent an increase in the future..

## **5.2 Status of Legislation Dealing with Nutrient Reduction**

The most essential laws and regulations actually dealing with nutrient pollution reduction and prevention, are:

- \* 1999. LIII. Law - General act of environmental protection;
- \* 1995. LVII. Law - Water management;
- \* 83/1997. (IX.26.) Government Decision - National Environmental Program;
- \* 2126/1999. (V.31.) Government Decision - 1999 Provision Plan of the National Environmental Program;
- \* 2207/1996. (VII.24.) Government Decision - Directives of waste water disposal and treatment program of the Hungarian settlements;
- \* 33/1993. (XII.23.) KTM Decree - Waste water fines on water pollution (containing threshold limits for nutrients; but only for lakes and sensitive waters);
- \* 34/1993. (XII.23.) KTM Decree - Sewerage fines;
- \* MSZ 12749 Hungarian Standard - Quality of surface water; quality characteristics and classification.

The most essential laws and regulations currently in the phase of discussion / preparation are:

- \* New decree/law - Surface and ground water pollution control; (under inter-departmental co-ordination, expected implementation: 1999);
- \* Ministerial Decree - Waste water emission permits; (draft ready, expected implementation: 1999);

- \* Ministerial Decree - Vulnerability of surface waters (study in progress, expected implementation: 2000);
- \* Ministerial Decree - Water quality classification on ecological basis (expected implementation: 2001);
- \* Ministerial Decree - Surface water quality objectives; (expected implementation: 2001);
- \* Ministerial Decree - Good agricultural practice; (study available; expected implementation 2000);
- \* Ministerial Decree - Identification of zones, vulnerable to nitrate pollution, for the protection of ground water (basic studies under preparation; expected implementation: 2001);
- \* Governmental Decree - Protection of waters against N-pollution from agricultural sources; (basic studies under preparation; expected implementation: 2001).

Taking into account the significant improvements achieved during the previous few years, it is expected that Hungary which is one of the priority candidate to join the EU before the year 2005 can successfully achieve the required harmonization of national environmental legislation with EU legislation in time; especially if this ambitious task is further supported by international co-funding.

### **5.3 Programs Dealing with Nutrient Reduction**

There is currently no program specifically related to nutrient removal/reduction organized by the Ministry of Environment. The ministry is however responsible for programs which are closely linked to nutrient removal/reduction either for the whole country or for designated areas. The most important programs are:

- \* National waste water collection and treatment program, aiming at the development of adequate waste water treatment capacities of big cities and smaller settlements, according to the requirements of EU legislation between 1997 and 2010;
- \* Program to improve the water quality and ecological status of the Lake Balaton, including the implementation of Phase II of the Kis-Balaton project.

For the near future it is planned to launch a governmental program for the implementation of the Nitrate Directive (91/676/EEC).

### **5.4 Major Measures / Activities Related to Nutrient Reduction**

The main measures and activities related to nutrient reduction can be summarized as follows:

- \* Regarding municipal waste water discharge: implementation of WWTP with advanced technology, especially in the areas of highly vulnerable water resources;
- \* Regarding pollution from agricultural sources: promotion of good agricultural practice;
- \* Regarding pollution from non-point sources: improvement of the monitoring system;
- \* Regarding legislation: step by step adjustment of the relevant laws and regulations to reach the requirements of EU legislation in time.

Most of these measures and activities have already been started or are currently in the phase of preparation.

At the time being about 43% of the population is connected to WWTP with either mechanical or biological treatment standards.

## **6 Slovenia (*to be completed after receipt of the filled questionnaire*)**

### **6.1 Policy Objectives, Principles and Priorities for Pollution Reduction / Nutrient Reduction**

The national objectives as formulated by the National Water Program are as follows:

- \* Formulation of principals for sustainable water management;
- \* Implementation of integrated water management;
- \* Creation of regional institutions and enterprises to manage water quality and quantity;
- \* Development of a financial system for support of the water management strategy;
- \* Development of the inspection and control systems;
- \* Development of an information system on water economy.

### **6.2 Status of Legislation Dealing with Nutrient Reduction**

Slovenia has no recent legislation on water; the most urgent task is the preparation of a new "Water Act" that will replace the outdated one from 1981.

The new Act on Water, at the time being in draft status, will stipulate the institutional structure as well as the basic responsibilities, liabilities and obligations for the implementation of the new national water management program.

A general task is future harmonization of national legislation with EU regulations and standards.

### **6.3 Programs Dealing with Nutrient Reduction**

### **6.4 Major Measures / Activities Related to Nutrient Reduction**

## **7 Croatia**

### **7.1 Policy Objectives, Principles and Priorities for Pollution Reduction / Nutrient Reduction**

According to the National Water Pollution Control Plan from January 1999 the overall objective for water pollution control, respectively nutrient reduction, is to protect the environment and life and health of people by providing adequate water for the different purposes of utilization. The priorities regarding water pollution control and water management are ranked as follows:

- \* Preservation of water resources which are still clean (i.e. upstream river stretches of quality class I and groundwater), as future drinking water resources;
- \* Avoidance of further degradation of actual water quality;
- \* Restoration or removal of sources of pollution concerning existing or planned drinking water resources, as well as other resources where water is used for different human and economic purposes (usually water resources of class II or III);
- \* Strengthening of monitoring of sources of water pollution or potential accidental emergencies.

Regarding municipal WWTPs priorities are defined as follows:

- \* WWTPs > 50000 PE: in this category there are 29 WWTPs to be newly constructed or extended/reconstructed for improved treatment standards (biological treatment, N+P elimination);
- \* WWTPs > 10000 PE in sensitive areas (to be implemented by the year 2005);
- \* WWTPs > 15000 PE (to be implemented by the year 2010);
- \* WWTPs between 2000 and 15000 PE (to be implemented by the year 2025).

## **7.2 Status of Legislation Dealing with Nutrient Reduction**

Due to the fact that Croatia is an independent state only since 1990, the legal and institutional structures are still in the process of transformation, also in the fields of water management and environmental protection. The most essential laws and regulations dealing with nutrient reduction, are:

- \* Water Act (published in Narodne novine official gazette, No 107/95) which provides the framework for new regulations in the fields of water pollution control and water quality control in compliance with the EU regulations and relevant international conventions;
- \* Water Management Financing Act (No 107/95);
- \* Ordinance on Water Classification (No 77/98);
- \* Ordinance of Hazardous Substances in Water (No 78/98);
- \* Regulations on the issuing of water management conditions, consents and permits (No 28/96);
- \* National Water Pollution Control Plan (8/99);
- \* Regulation on discharge of hazardous and other substances into water (No 44/99):

Regulations for calculation of water pollution charges and definition of charging levels are currently in the status of preparation and are expected to become effective on January 01, 2000.

Despite of significant improvements during the previous years there is substantial demand to reach compatibility with the requirements of EU legislation.

## **7.3 Programs Dealing with Nutrient Reduction**

At the time being priorities are related to post-war reconstruction of destroyed waste water treatment plants and systems and rehabilitation measures especially in drinking water

protection areas and cast areas. The programs actually dealing with nutrient reduction are structured as follows:

- \* Reduction of water pollution from municipalities:  
42 projects recommended, 8 project in progress, 34 projects in planning status;
- \* Reduction of water pollution from industries:  
5 projects recommended, 1 project in progress, 4 projects in planning status;
- \* Reduction of water pollution from agriculture:  
3 projects recommended, 2 project in progress, 1 project in planning status.

#### **7.4 Major Measures / Activities Related to Nutrient Reduction**

Beside the implementation of the ongoing investment projects as listed above the following plans are currently under preparation:

- \* Water Management Master Plan (expected date of completion: July 01. 2000);
- \* Water Management Plans for river basin areas (expected date of completion: July 01. 2000).
- \* Strategy of Environmental Protection;
- \* Forest management plans on the state level; etc.

## **8 BOSNIA & HERZEGOVINA**

### **8.1 Policy Objectives, Principles and Priorities for Pollution Reduction / Nutrient Reduction**

Since the Dayton Peace Agreement of 1995 the Republic of Bosnia and Herzegovina consists of two entities: the Federation of B&H and the Republic Srpska. Both entities have their own policies and legislation regarding management and protection of water resources. Common principles are:

- \* water is a limited natural resource which has to be used within the limits of recoverability, both in quantity and quality;
- \* water management and protection is the joint task of all institutions, companies and individuals dealing with water.

Until now there are no officially formulated policy objectives or priorities on water protection and especially not on nutrient reduction.

### **8.2 Status of Legislation Dealing with Nutrient Reduction**

Since the declaration of the new constitution in 1994, environmental legislation is still in the constitutional phase. Allocation of competence and responsibilities between national level (Federation of Bosnia and Herzegovina and Republic Srpska), canton level and municipal level are not adequately and efficiently defined, but just provisional determined.

As a consequence of the civil war there are at the time being no laws or regulations especially dealing with nutrient reduction; it is however recognized a high priority to establish appropriate legislation which has to take into account environmental and economic aspects as well as the poor post-war status of the water sector in the new country.

### **8.3 Programs Dealing with Nutrient Reduction**

At the time being there are no current or planned programs, especially dealing with nutrient reduction.

### **8.4 Major Measures / Activities Related to Nutrient Reduction**

In the post war period numerous water supply and waste water systems / treatment facilities have been reconstructed with international assistance . At the time being there are just a few conventional waste water treatment plants in B&H, generally without particular facilities for nutrient reduction.

## **9 Yugoslavia *(to be completed after receipt of the filled questionnaire)***

### **9.1 Policy Objectives, Principles and Priorities for Pollution Reduction / Nutrient Reduction**

The long term objectives for protection of the quality of surface and groundwater are:

- \* Develop long-term plan for maintenance and development of the water regime;
- \* Determine the available water potentials in the catchment area and the conditions for water management;
- \* Define water resources management development;
- \* Ensure integral, complex, economic and uniform use of water resources in all spheres;
- \* Secure the protection and improvement of water quality;
- \* Gear scientific, research, study and observation activities.

### **9.2 Status of Legislation Dealing with Nutrient Reduction**

The legal framework for environmental protection and the protection of water resources and ecosystems is a composite of federal and republican laws and regulations and consequently characterized by discrepancies.

The particular administrative structure of the country calls for basic coordination between the legislation of the Republics, in each of which the system of environmental protection has been rather well developed and the Federation which is authorized to lay down the fundamentals of the system of environmental protection.

In addition, numerous laws and regulations regarding environmental issues were adopted long time ago, have been frequently amended and need revision.

### **9.3 Programs Dealing with Nutrient Reduction**

## **9.4 Major Measures/Activities Related to Nutrient Reduction**

# **10 Bulgaria**

## **10.1 Policy Objectives, Principles and Priorities for Pollution Reduction / Nutrient Reduction**

The "Bulgaria Environmental Strategy Study" developed in 1992 by experts from the MoEW and the World Bank defines the following priorities for water pollution reduction:

- \* Reduction of industrial contamination, especially of the toxic substances;
- \* Completion of the municipal WWTPs with advanced stage of construction;
- \* Modernization of existing municipal and stock breeding WWTPs;
- \* Construction of municipal WWTPs in towns with developed sewerage systems.

## **10.2 Status of Legislation Dealing with Nutrient Reduction**

The harmonization of the national legislation regarding water and solid waste management, ecology, health and the procedures for environmental impact assessment with international regulations and standards has been started in 1990 and is an ongoing process. Up to now the complex system of environment and water related legislation is obviously not fully compatible and suited for adequate control and management of the serious environmental problems in the country.

As the existing legislation in the water sector does not sufficiently correspond to the requirements of the EU legislation, a specific program for harmonization of national legislation with EU legislation has been launched. In July 1999 a new water act has been adopted by the parliament. This water act introduces the guiding requirements of the EU Water Framework Directive and provides the framework for introducing subordinate directives. With the introduction of particular laws and regulations it is envisaged to achieve in the short-term a complete approximation to the relevant EU directives.

## **10.3 Programs Dealing with Nutrient Reduction**

Programs with some relevance to nutrient reduction are:

- \* Comprehensive program for the implementation of legislation and the provision of mechanisms for their implementation and monitoring;
- \* Update of the Environmental Protection Strategy, facilitating the "environment section" of the National Development Plan;
- \* National program for the priority construction of municipal waste water treatment plants for towns with more than 10000 inhabitants; this program incorporates strategic guidelines for planning, construction and operation of WWTPs in the country, in compliance with EU provisions.

## **10.4 Major Measures/Activities Related to Nutrient Reduction**

Due to lack of funds only a few projects and measures with significant effects on nutrient reduction have been implemented in the recent years. These were usually small scale projects with relatively low investment cost.

Regarding waste water treatment the situation is rather unsatisfactory:

- \* Only 12 of 24 towns with a population of more than 50000 have WWTPs;
- \* Only 22 towns of a total of 87 with a population of more than 10000 have WWTPs;
- \* 16 WWTP have been under construction / reconstruction / extension for the last few years;
- \* For the entire country 50 municipal WWTP are in operation with a projected capacity of about 1.8 million m<sup>3</sup>/day, serving some 35% of the population.

Regarding pollution from diffuse sources water quality data relevant to nitrate values reveal that contamination caused by agriculture is significantly decreased; mainly due to reduced utilization of agrochemicals.

## **11 Romania (to be completed after receipt of the filled questionnaire)**

### **11.1 Policy Objectives, Principles and Priorities for Pollution Reduction / Nutrient Reduction**

The national objectives regarding water pollution reduction can be summarized as follows:

- \* Reducing nitrates, organic substances and pesticides;
- \* Decreasing the amounts of heavy metals and highly degradable organic compounds in sediments;
- \* Reducing BOD<sub>5</sub>, N and P emissions from WWTPs;
- \* Controlling diffuse pollution.

The strategic directions, which are to be followed-up with the structural and nonstructural projects and measures proposed for pollution reduction are:

- \* Gradually development of municipal waste water treatment capacities;
- \* Gradually development of waste water treatment in agricultural sector;
- \* Gradually development of waste water treatment in industrial sector;
- \* Integrated management of water resources;
- \* Abatement of risks related to accidental pollution and natural calamities;
- \* Ecological reconstruction.

### **11.2 Status of Legislation Dealing with Nutrient Reduction**

At the time being the environment and water related legislation is in a process of transformation. The reorganization of the legislation framework reflects the need to manage all the natural resources as part of an integrated system and strategy, which involves cooperation between all relevant authorities and institutions on the different administrative levels.

The Law of Waters (No 107/1996) provides the framework of technical regulations for water pollution reduction and water management. Besides the Law of Environmental Protection (137/1995) comprises special provisions for water protection.

One of the main concerns is the harmonization of the national environment and water related legislation with international requirements, regulations and standards which is envisaged for the forthcoming period.

### **11.3 Programs Dealing with Nutrient Reduction**

### **11.4 Major Measures/Activities Related to Nutrient Reduction**

## **12 Moldova (to be completed after receipt of the filled questionnaire)**

### **12.1 Policy Objectives, Principles and Priorities for Pollution Reduction / Nutrient Reduction**

The national objectives regarding reduction of water pollution is to maintain human health and to eliminate health risk in water resources, to provide sources of nutrition and to maintain and restore biodiversity. This would require the performance of the following tasks:

- \* Comprehensive evaluation of water resources conditions and elaboration of a concept of protection and rational use of water resources and water balanced systems based on sustainable development approach;
- \* Elaboration of scheme for river basins use;
- \* Development of ecological criteria for assessment of permissible loads into surface waters;
- \* Development of integrated parameters and criteria for maintaining of ecological balance in water bodies;
- \* Preparation of a profound basis for rehabilitation and maintenance of proper ecological conditions in water bodies for different uses.

### **12.2 Status of Legislation Dealing with Nutrient Reduction**

According to the constitution of the Republic of Moldova the President of the Republic is responsible to the world community for the state of environment and he also represents the interests of Moldova on environment protection at the international level.

Although there is a complex system of environmental legislation (with a high number of decrees, laws and regulations elaborated and amended since 1990), there remains the problem of enforcement due to the problematic economic situation and the lack of professional capability.

### **12.3 Programs Dealing with Nutrient Reduction**

### **12.4 Major Measures/Activities Related to Nutrient Reduction**

## 13 Ukraine

### 13.1 Policy Objectives, Principles and Priorities for Pollution Reduction / Nutrient Reduction

In Ukraine policy objectives and principles for nutrient reduction are included as sub-components in the overall environmental protection strategy formulated in the "Main Directions of State Policy on the Environmental Protection, Utilization of Natural Resource and Environmental Safety" (from 1998). These directions formulate the protection of surface and ground water against pollution through nutrient discharges among other environmental priorities.

The general strategic goal is the ecologically sustainable use of water resources, which will guarantee the environmental safety of water bodies, including cases of accidental pollution, and establish conditions for a balance between adverse impacts on the surface water resources and their renewal ability.

The main objectives with relevance for nutrient reduction are:

- \* Reduction of nutrients load (N, P, BOD), oil products, pesticides, heavy metals ions, radionuclides and other harmful substances in the water bodies;
- \* Pollution reduction from WWTPs, including pollution from municipal waste water;
- \* Pollution reduction from diffuse sources, particularly from agriculture;
- \* Improvement of regulatory, legislative, environmental and economic bases for quality of water bodies;
- \* Improvement of registration, monitoring, and control systems of surface and ground water pollution; the development and setting up a system for identification and analytical control of all surface water pollution sources;
- \* Conservation of biological and landscape diversity, expansion of the network of national park and reserves and wetlands restoration.

### 13.2 Status of Legislation Dealing with Nutrient Reduction

The basic principles for the protection of the environment in the Ukraine are regulated by the "Law on protection of the Environment, 1996" and the "Law on Sanitary and Epidemiological Security of the Population, 1994". The main water related issues are regulated by "The Water Code of Ukraine, 1995".

In addition there are a number of regulations, rules norms, etc., regulating in detail particular issues.

Altogether it is recognized that an improvement of the unsatisfactory environmental situation can only be achieved by more effective control and enforcement of gradually improved environmental legislation.

At the time being Ukraine does not have any direct legislative norms and standards regulating the content of nutrient discharges to the surface waters and related

eutrophication; instead of that there are norms for N and P discharges in terms of “maximum permitted concentrations” which can serve as an indirect tool for controlling nutrients loads.

Harmonization of the Ukrainian legislation with the EU legislation (directives) is formulated as a long-term objective.

### **13.3 Programs Dealing with Nutrient Reduction**

Ukraine has not established a particular “National Pollution Reduction Program” or a “Nutrient Pollution Reaction Program”. Nevertheless most of the national, state, sector, and regional programs include measures to prevent pollution and nutrient discharges and to reduce overall pollution load on the environment from human activities. The most essential programs are:

- \* National Program on the Improvement of the Ecological State of the Dnipro River Basin and Quality of Drinking Water;
- \* Program on Pollution Reduction from Municipal WWTPs;

In addition the Government of Ukraine is encouraging and supporting local environmental protection programs.

### **13.4 Major Measures / Activities Related to Nutrient Reduction**

Due to lack of funds only few projects and measures with effects on nutrient reduction have been realized until now. These were usually small scale projects with relatively low investment cost. Taking all projects listed in the National Review Report the actual investment portfolio for the 2-year-period 1997/98 was about USD 50 million for the DRB area in Ukraine.

## 14 SUMMARIZING CONCLUSION

### 14.1 Policy Objectives, Principles and Priorities for Pollution Reduction / Nutrient Reduction

Each of the DRB countries has actually a more or less comprehensive system of environmental and water sector related policies and strategies which usually reflects:

- \* the capability of the country to contribute to the solution of transboundary problems;
- \* the significance and evidence of the country specific environmental problems;
- \* the significance and evidence of environmentally related health hazards;
- \* the economic development and affordability of the country.

In this context all countries have developed a hierarchic system of short, medium and long term objectives and principles which usually reflect the key environmental problems and the sector priorities on national and regional level.

The long term objectives are usually very general and often not related to any definite time frame for implementation or solution. Usually there are also no estimates of the overall long term funding requirements. In the DRB countries the long term objectives of environmental policy mainly focus on:

- \* Protection of climate and ozone layers;
- \* Preservation of a sound environment for the future generation;
- \* Protection of biological diversity;
- \* Protection of drinking water resources.

Objectives for water pollution and especially nutrient reduction are usually incorporated as sub-components in superior objectives. Most of the countries have however established a system of priorities for nutrient reduction, usually defining the sequence of construction, extension, or improvement of treatment standards for WWTPs, usually classified by plant capacities (small, medium large).

Despite the diversity of problems, interests and priorities across the DRB, the Danube countries share certain values and principles relating to the environment and the conservation of natural resources. The most essential principles, also relevant for water pollution, respectively nutrient reduction, are:

- \* The precautionary principle: under certain circumstances it is better to be on the safe side, even if firm evidence is lacking, than to be actually wrong;
- \* Best available technology (BAT) - best environmental practice (BEP);
- \* Control of pollution at the source: usually it is less expensive to prevent the creation of harmful wastes or pollution through cleaner technologies and processes than to cure and repair the damage to the environment afterwards;
- \* The "polluter pays" principle and the related "user pays" principle.

In mean time all DRB countries have at least theoretically recognized that the adoption of these principles is indispensable for appropriate prioritization and implementation of environment related measures.

#### **14.2 Status of Legislation Dealing with Pollution Reduction / Nutrient Reduction**

Apart from Germany and Austria, the adequacy of the legal framework for sound environmental management of water resources has to be discussed under the aspect of the political, economic, administrative and social changes which have taken place in the particular DRB countries during the previous years of transition.

In all DRB countries the legal framework for environmental management of water resources and ecosystems consists of a hierarchic system of decrees, laws and regulations on the different administrative levels.

The international agreements and conventions signed or ratified by the particular countries constitute a kind of orientation framework for the national environmental policies and legislation of the member countries.

A particular feature for all DRB countries is the harmonization of the national environmental legislation with EC regulations and standards. Hungary, Czech Republic and Slovenia which are the priority candidates to join the EU before the year 2005, are expected to successfully achieve this process of harmonization in time. In the other countries the time frame for the envisaged harmonization is determined by the actual status of environmental and water management legislation and the economic capability and affordability of the particular country.

In a number of countries numerous laws and regulations were adopted long time ago, have been frequently amended during the previous years of transition and need basic revision.

Thus in most of the DRB countries the relevant legislation is currently in the phase of substantial reform and modernization. Due to the complexity of this task it can be anticipated that the completion of the ongoing reform process will take several years until the relevant legislation will have reached an acceptable level of compliance with international requirements.

Countries in which the legal framework for environmental management of water resources and ecosystems has to be considered as adequate and in consistence with international requirements are Germany and Austria, and with some reservations Hungary and Czech Republic.

In the other countries there are still essential deficits and problems:

- \* in some countries the environmental and water related legislation is still based to a certain extent on historical structures, with the consequence that the various changes, adjustments and modifications have led to critical inconsistencies;

- \* some countries are currently in the process of establishing new environment and water related legislation, for which the practical applicability and effectiveness has not yet been proven;
- \* some countries have developed relatively sophisticated systems of environmental and water related legislation, which can at the time being not really be enforced due to critical social and economic issues in the country.

In these countries the actual environment and water related legislation cannot be considered as fully adequate regarding sound and sustainable environmental management of water resources and ecosystems from the international point of view.

Common deficiencies and needs for improvement regarding water sector related legislation in the DRB countries can be summarized as follows:

- \* Restructuring and adjustment of relevant legislation to the requirements of modern environment oriented market economy;
- \* Streamlining, simplification and elimination of inconsistent components, basically resulting from ad-hoc changes during the previous transition period;
- \* Ensurance of utmost compatibility of interacting legislation on the various administrative levels;
- \* Specification of efficient implementing regulations and enforcement mechanisms; elimination of all kinds of not-justified exemptions;
- \* Further harmonization of national legislation with EU regulations and standards.

### **14.3 Programs Dealing with Nutrient Reduction**

None of the DRB countries does presently dispose of an explicitly formulated “nutrient reduction programs”. Measures and activities with relevance to nutrient reduction are usually sub-components or substantially incorporated in other programs.

Apart from Germany and Austria all other DRB countries consider the harmonization of national environment and water related legislation with EU legislation and standards as the most essential prerequisite for long-term sustainable nutrient reduction in their countries. In Czech Republic, Hungary and Bulgaria this harmonization is incorporated in an ongoing program and considered as a short-term task. In some other countries it is considered as a medium-term task and in Moldova, Ukraine and presumably also in the war-impacted countries B&H and Yugoslavia as a long-term task.

In all DRB countries the main on-going programs regarding nutrient reduction are investment programs for new construction, extension, rehabilitation or improvement of effluent standards (biological treatment, N+P elimination) of municipal WWTPs. Involved are occasionally the provision of guidelines for selection of priority projects, country specific effluent standards in dependence of plant capacity, and technical and operational standards.

Regarding diffuse sources of pollution there are usually just small scale / pilot programs.

In addition there are usually various other programs or program components dealing with particular issues, such as development of administrative, institutional or human resource capacities, with usually small budgets.

#### 14.4 Projects / Measures / Activities Related to Nutrient Reduction

The funds provided in the past for projects with relevance to nutrient reduction were very different from country to country. Apart from Germany and Austria, which have an extraordinary status compared to the other DRB countries, some of the DRB countries provide significant funds for measures and projects with some relevance to nutrient reduction, either in absolute figures or as percentage of GDP.

Taking the figures as provided in the National Review Reports for the period 1997/98 the average annual investment portfolio for "water quality and water management projects" (of which about three quarters are dedicated to nutrient reduction ) varied between USD 14 million in Moldova and USD 260 million in Hungary; the annual investment in % of GDP varied between 0.2 % in Croatia and 1.4 % in BiH. The figures for the particular countries are presented in the following compilation.

Average water sector investment portfolios of DRB countries :				
	Country Specific Average Annual Investment Portfolio		Annual Investment per Capita USD/Capita	Annual Investment in % of GDP per Capita (%)
	(Million USD)	(%)		
BiH (***)	56	10 %	14.7	1.4 %
Bulgaria (*)	4	0 %	0.5	0.0 %
Croatia	50	9 %	10.5	0.2 %
Czech Repub.(**)	38	7 %	13.6	0.3 %
Hungary	280	50 %	27.4	0.6 %
Moldova	14	2 %	3.2	0.6 %
Romania	92	17 %	4.1	0.3 %
Slovakia	--	--	--	--
Slovenia	--	--	--	--
Ukraine (**)	26	5 %	8.4	0.9 %
Yugoslavia	--	--	--	--
Sub-total	560	100%		
Germany (**)	1539	--	169	0.7 %
Austria	1291	--	159	0.6 %
Total	3390			

(\*) figures only for year 1997; (\*\*) figures only for DRB area; (\*\*\*) extraordinary post-war situation

**ANNEX 3:**

**GEF OPERATIONAL FOCAL POINT  
ENDORSEMENT LETTERS**

## MINISTRY OF WATERS, FORESTS AND ENVIRONMENTAL PROTECTION

## NATIONAL GEF OPERATIONAL FOCAL POINT

B-dul Libertatii nr. 12, Sector 5, Bucharest Romania

Tel. 40 1 410 53 86; Fax 40 1 312 52 07

To:  
Mrs. Loreta Chungthai  
UNDP Office, New York

cc : Mr Valentin Alexandrescu (Mrs. Dana Albu), UNDP Romanian Territorial Office  
Mr. Joachim Bendow, Executive Secretary ICPDR

LETTER OF ENDORSEMENT  
FOR PDF B

**Strengthening Implementation of Nutrient Reduction Measures and Transboundary  
Cooperation in the Danube River Basin**

Dear Mrs. Loreta Chungthai

This is to confirm the endorsement for the Project Development Funds Block B Grant required for the preparation of the "Strengthening Implementation of Nutrient Reduction Measures and Transboundary Cooperation in the Danube River Basin" project.

The Ministry of Waters, Forests and Environmental Protection will give technical assistance and will provide personal representing Romania's in kind contribution evaluated at 10 000 \$ for the project.

The proposed project is very necessary and important for Romania, which is very much concerned about the nutrient reduction issue.

Sincerely yours,

ANTON LEAL

Secretary of State



## REPUBLIC OF CROATIA

STATE DIRECTORATE FOR THE PROTECTION  
OF NATURE AND ENVIRONMENT

HR-10000 Zagreb,  
Ulica grada Vukovara 78, Croatia  
Phone: ++385 1/6118-388, 6133-444, 6111-992  
Fax: ++385 1/537-203  
E-mail: duzo@ifmg.net  
Class: 351-01/99-08/181  
Reg.No.: 352-02-99-KP-1  
Zagreb, 24 November 1999

UNDP

Ms Laureta Chughtai  
New York

e-mail: laureta.chughtai@undp.org

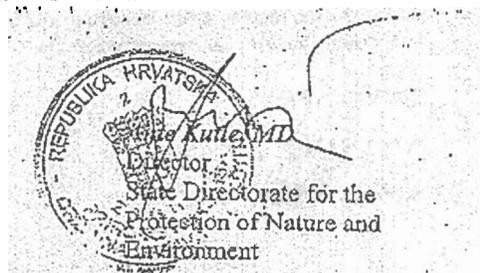
**SUBJECT:** Endorsement for the proposal for the PDF Block B Grant  
to the Danube River Basin project

Dear Ms Chughtai,

I would like to reiterate our endorsement for the proposal for the PDF Block B Grant to the Danube River Basin project, which will further assist the ICPDR and the Danube countries to develop policies and strategies at the national level for the efficient pollution reduction and transboundary resources management. The results of the project are also essential for the approximation process to the European Union, focusing in particular on the implementation of the EU Water Framework Directives and other environmental directives.

Yours sincerely,

Kornelija Pintaric  
GEF Focal Point



CC:

Mr Joachim Bendow  
Executive Secretary ICPDR  
1400 Vienna - Austria  
fax + 431 26060 5895

Ulica grada Vukovara 78/III, Zagreb, Croatia, phone: +385 1/6118-970, 6113-053, 6115-332, 6110-797, 6119-371, 6119-370  
fax: +385 1/6118-388, 537-203

Ulica 44, Zagreb, Croatia, phone: +385 1/432-022, 432-023, 431-150,  
fax: +385 1/431-515

recycled paper

**MINISTRY OF THE ENVIRONMENT  
OF THE CZECH REPUBLIC**  
Global Relations Department  
Vršovická 65, 100 10 Prague 10  
Tel.: 0042 02 6712 2896; Fax: 004202 6731 0307

**FAX**

No. of pages: 1 (including cover sheet )  
Date: November 30, 1999  
Our ref.: 1656.1/920/99

**Mr. Joachim Bendow**  
Executive Secretary  
ICPDR  
A-1400 Vienna, Austria

Fax: 0043 1 26060 5837/5895

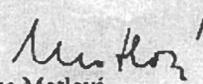
**Subject: Project proposal "Strengthening Implementation of Nutrient Reduction Measures and  
Transboundary Cooperation in the Danube River Basin"/Endorsement Letter**

Dear Mr. Bendow,

This is to acknowledge that the Ministry of Environment is pleased to concur with the proposal for the PDF Block B Grant to the Danube River Basin Project. We are convinced that the Project will assist the ICPDR and the Danube river basin countries to develop further policies and strategies at the national level for the efficient pollution reduction and transboundary resources management. We are also viewing future results of the Project as the essential contribution to the approximation process with European Union, focusing, in particular, on the implementation of the EU Water Framework Directives and associated environmental provisions

This is in my capacity, acting as the UNDP/GEF focal point, to endorse on behalf of the Ministry the aforementioned project.

Sincerely,



Martina Motlová  
Director

**Deputy State Secretary**

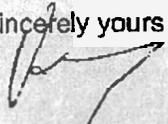
**Mr. Christopher Briggs**  
GEF Regional Coordinator  
UNDOP-PBEC  
New York

**Subject:** Endorsement of the proposal for PDF Block B grant "Strengthening Implementation of Nutrient Reduction Measures and Transboundary Cooperation in the Danube River Basin" (Submitted by the Secretariat of the Danube River Protection Convention)

Dear Mr. Briggs,

As a designated GEF Focal Point for Hungary hereby I endorse the referred above project proposal expressing our readiness to participate in its implementation.

Sincerely yours

  
Nándor Vass

FRI, 26-NOV-99 16:37

MIN. OF ENVIRONMENT SR

+421 7 59562367

P. 01/01

MINISTERSTVO ŽIVOTNÉHO PROSTREDIA  
SLOVENSKEJ REPUBLIKY  
#12 35 BRATISLAVA, NÁMESTIE ĽUDOVÍTA ŠTÚRA 1

Ministry of the Environment  
of the Slovak Republic  
Air Protection Department

Bratislava, 26 November, 1999  
Ref.: 891/99-2.1.

Dear Madam,

The International Commission for the Protection of the Danube River (ICPDR), which is responsible for the implementation of the Convention on cooperation for the protection and sustainable use of the Danube River, has received substantive assistance from UNDP/GEF in developing the Pollution Reduction Programme and other mechanisms to facilitate programme implementation. The new GEF project - Strengthening Implementation of Nutrient Reduction Measures and Transboundary Cooperation in the Danube River Basin, shall further assist the ICPDR and the Danube countries, to develop policies and strategies at the national level for efficient pollution reduction and transboundary resources management. The results of the project are also essential for the approximation process to the European Union, focusing, in particular, on the implementation of the EU Water Framework Directives and other related environmental directives.

This is the reason why the Slovak Republic as a Contracting Party of ICPDR to the Convention endorses the project proposal.

Yours sincerely

  
Ivan Mojik  
GEF Operational Focal Point

Mrs. Laureta Citughtai  
Programme Assistant  
UNDP/GEF  
Regional Bureau for Europe and the CIS  
United Nations Plaza 1  
New York

cc: Mr. Joachim Bendow  
Executive Secretary  
ICPDR  
POB 500  
A-1400 Vienna, Austria



**REPUBLIC OF BULGARIA  
MINISTRY OF ENVIRONMENT AND WATER**

*67 William Gladstone Str., Sofia 1000, Bulgaria ☎ Tel. (+359 2) 581 49 62, Fax (+359 2) 956 4848*

**To: Mr. Antonio Vigilante  
Resident representative  
UNDP Bulgaria**

**Re: Danube regional project: "Strengthening of Implementation Capacity for Nutrient Reduction and Transboundary Cooperation"**

**Date: 12 November, 1999**

Dear Mr. Vigilante,

The Government of the Republic of Bulgaria supports in principle the above project proposed to the PDF entitled "Strengthening of Implementation Capacity for Nutrient Reduction and Transboundary Cooperation in the Danube river basin". Bulgaria is interested in participating in this initiative and is very appreciative of the partnership between UNDP, World Bank, UNEP and International Commission for the Protection of the Danube River Basin.

However, we consider that it would be appropriate for the proposal to be presented at the forthcoming Steering Group meeting of ICPDR in Sinaia, Romania. Only after discussing it with the contracting parties, our country will decide whether to finally support the decision of the Commission.

We are looking forward to our future cooperation.

Yours sincerely,

**Neno Dimov  
Deputy Minister  
Ministry of Environment and Water  
Sofia**

		ADM
	DG	
Date	15. 11. 1999	
nto	✓	

*15.11.1999 Dimov*

UNITED NATIONS  
DEVELOPMENT PROGRAMME



PROGRAMUL NATIUNILOR  
UNITE PENTRU DEZVOLTARE

31 August 1999 str. 131, MD2012 Chisinau, Moldova  
Country/city Code: International (373-2) From the former USSR (8-042-2)  
Tel: 220-045 (switchboard); Fax: 220-041 E-mail: registry.md@undp.org  
Internet Home Page: http://www.un.md

---

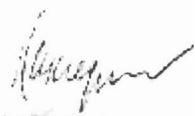
Ref No.	<u>10476/MaP/</u>	Number of pages	2
Charged to:	MOL/97/010	(including cover sheet)	
TO	Mrs. Laureta Chugthai Programme assistant UNDP/GEF Regional Bureau for Europe and CIS	FAX.	1 212 306 5102
FROM:	Vitalie Snegur Assistant Resident Representative, UNDP Moldova	DATE:	November 30, 1999
SUBJECT:	Letter of Endorsement/ Nutrient Reduction Measures in the Danube Basin		

---

Dear Mrs. Chugthai,

Please find attached for your kind consideration a copy of the letter of endorsement on behalf of the Government of the Republic of Moldova regarding the request of the PDF Block B Grant for project preparation within the regional project "Strengthening Implementation of Nutrient Reduction Measures and Transboundary Cooperation in the Danube River Basin".

Sincerely yours,

  
Vitalie Snegur

Assistant Resident Representative  
UNDP Moldova



**REPUBLIC OF SLOVENIA**  
**MINISTRY OF THE ENVIRONMENT AND SPATIAL PLANNING**

Družayka c. 48, 97-1000 Ljubljana, Slovenia  
Phone: +386 51 27 87 332 • Fax: +386 61 1787 425

Reference: 922-00-19/97  
Date: 11 November, 1999

**Dr. Christopher Briggs**  
**Regional Coordinator**  
**Global Environment Facility**  
**Regional Bureau for Europe & the CIS**  
**New York, NY 10017**

**Subject: Letter of Endorsement for the project proposal**  
**"Strengthening Implementation of Nutrient Reduction Measures and Transboundary**  
**Cooperation in the Danube River Basin"**

Dear Dr. Briggs,

hereby I would like to inform you that Slovenia supports the UNDP-GEF initiative for the above mentioned project and we will be glad to participate in its implementation

As the designated GEF Focal Point for Slovenia, I am pleased to endorse the project proposal: "Strengthening Implementation of Nutrient Reduction Measures and Transboundary Cooperation in the Danube River Basin".

Yours sincerely,

  
*[Signature]*  
**Haral Ferjančič**  
**International Relations,**  
**GEF Political and Operational Focal Point**