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Report No: 29832 BA

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED GRANT FROM THE  
GLOBAL ENVIRONMENT FACILITY TRUST FUND

IN THE AMOUNT OF US\$8.9 MILLION

TO

BOSNIA AND HERZEGOVINA

FOR A

WATER QUALITY PROTECTION PROJECT

MAY 9, 2005

Infrastructure and Energy Sector Department  
South East Europe Country Unit  
Europe and Central Asia Region

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**CURRENCY EQUIVALENTS** (Exchange Rate Effective May 9, 2005)

Currency Unit = Convertible Marka (KM)

1.00 KM = US\$ 0.66

US\$ 1.47 = SDR 1.00

**FISCAL YEAR**

January 1 – December 31

**ABBREVIATIONS AND ACRONYMS**

BP	Bank Procedure	MAWMF	Federation Ministry of Agriculture, Water Management and Forestry
CAS	Country Assistance Strategy	NCB	National Competitive Bidding
CFAA	Country Financial Accountability Assessment	NEAP	National Environmental Action Plan
CFMS	Country Financial Management Strategy	NGO	Non-Governmental Organization
CQ	Selection based on Consultant's Qualifications	OD	Operational Directive
EA	Environmental Assessment	OP	Operational Policy
EBRD	European Bank for Reconstruction and Development	OPN	Operational Policy Note
ECA	Europe and Central Asia	PCWM	Public Water Management Enterprise
EPF	Environmental Policy Framework	PMT	Project Management Team
EMP	Environmental Management Plan	PMU	Project Management Unit
FMR	Financial Monitoring Report	PRSP	Poverty Reduction Strategy Paper
FMS	Financial Management Specialist	QCBS	Quality and Cost Based Selection
GEF	Global Environment Facility	RFP	Request for Proposal
GP	Good Practice	RS	Republika Srpska
IAS	International Accounting Standard	SAI	Supreme Audit Institution
IBRD	International Bank for Reconstruction and Development	SAP MED	Strategic Action Program in the Mediterranean Region
ICB	International Competitive Bidding	SBD	Standard Bidding Document
ICPDR	International Commission of Protection of the Danube River	SOE	Statements of Expenditure
ICR	Implementation Completion Report	TOR	Terms of Reference
IDA	International Development Association	UISD	Urban Infrastructure and Service Delivery
IFAC	International Federation of Accountants	UNEP	United Nations Environmental Program
LCS	Least Cost Selection	USAID	United States Agency for International Development
MFT	State Ministry of Finance and Treasury		

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Sector Director:	Hosseini Razavi
Sector Manager:	Sumter Lee Travers
Task Team Leader:	Seema Manghee

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**BOSNIA AND HERZEGOVINA**  
**WATER QUALITY PROTECTION**

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MAP  
IBRD 34054

BOSNIA-HERZEGOVINA  
WATER QUALITY PROTECTION  
PROJECT APPRAISAL DOCUMENT  
EUROPE AND CENTRAL ASIA  
ECSIE

Date: May 9, 2005	Team Leader: Seema Manghee
Country Director: Orsalia Kalantzopoulos	Sectors: Sanitation (100%)
Sector Manager/Director: Sumter Lee Travers	Themes: Pollution management and environmental health (P)
Project ID: P085112	Environmental screening category: Partial
Focal Area: International waters	Assessment
Lending Instrument: Specific Investment Loan	Safeguard screening category: Requires framework

Project Financing Data				
<input type="checkbox"/> Loan	<input type="checkbox"/> Credit	<input checked="" type="checkbox"/> Grant	<input type="checkbox"/> Guarantee	<input type="checkbox"/> Other:

For Loans/Credits/Others:

Total Bank financing (US\$m.): 0.00

Proposed terms:

Financing Plan (US\$m)			
Source	Local	Foreign	Total
BORROWER/RECIPIENT	6.19	0.00	6.19
GLOBAL ENVIRONMENT FACILITY	8.90	0.00	8.90
GLOBAL ENVIRONMENT - ASSOCIATED IDA FUND	4.00	0.00	4.00
SPAIN, GOV. OF	1.18	0.00	1.18
Total:	20.27	0.00	20.27

**Borrower:**

**Responsible Agency:**

Ministry of Agriculture, Water Management & Forestry  
Sarajevo, Federation of BiH, Bosnia-Herzegovina

Estimated disbursements (Bank FY/US\$m)									
FY	2005	2006	2007	2008	2009	2010	0	0	0
Annual	0.25	2.00	2.50	2.38	1.14	0.63	0.00	0.00	0.00
Cumulative	0.25	2.25	4.75	7.13	8.27	8.90	8.90	8.90	8.90

Project implementation period: Start September 30, 2005 End: September 30, 2010

Expected effectiveness date: September 30, 2005

Expected closing date: February 28, 2011

Does the project depart from the CAS in content or other significant respects? <b>Ref. PAD A.3</b>	[ ] Yes [X] No
Does the project require any exceptions from Bank policies? <b>Ref. PAD D.7</b>	[ ] Yes [X] No
Have these been approved by Bank management?	[ ] Yes [X] No
Is approval for any policy exception sought from the Board?	[ ] Yes [X] No
Does the project include any critical risks rated “substantial” or “high”? <b>Ref. PAD C.5</b>	[X] Yes [ ] No
Does the project meet the Regional criteria for readiness for implementation? <b>Ref. PAD D.7</b>	[X] Yes [ ] No
<p>Project development objective <b>Ref. PAD B.2, Technical Annex 3</b></p> <p>The project development objective is to further strengthen the capacity of local utilities and reduce pollution from municipal sources into the Neretva and Bosna Rivers. The global objective is to reduce municipal pollution and nutrients in the Adriatic Sea and the Danube Basin. The sub-objectives are: (i) develop the Wastewater Improvement Plan; (ii) further strengthen the Joint BiH/Croatian Working group, with coordination from Serbia and Montenegro to implement the Wastewater Improvement Plan; (iii) develop and implement high-priority, low-cost water capital investments; and (iv) disseminate information in BiH and the region for replication of project activities at other priority sites in the Balkans. The Bank could further improve ongoing communication between the neighboring countries, which would need to reach agreement on origination of water polluters and monitoring and evaluation of water quality and expand this cooperation to other neighboring countries.</p>	
<p>Global Environment objective <b>Ref. PAD B.2, Technical Annex 3</b></p> <p>The project objectives: conservation and sustainable use of water bodies and prevention of pollution of globally important ecosystems.</p>	
<p>Project description [one-sentence summary of each component] <b>Ref. PAD B.3.a, Technical Annex 4</b></p> <p>A. Reduction of river pollution in Bosnia and Herzegovina;  B. High-priority investments;  C. Natural Wastewater Treatment Pilot;  D. Project Management;  E. Replication, Information Sharing and Implementation.</p>	
<p>Which safeguard policies are triggered, if any? <b>Ref. PAD D.6, Technical Annex 10</b></p> <p>Environmental Assessment (OP/BP/GP 4.01)  Natural Habitats (OP/BP 4.04)  Projects on International Waterways (OP/BP/GP 7.50)  Cultural Property (draft OP 4.11 – OPN 11.03)</p>	
<p>Significant, non-standard conditions, <b>if any</b>, for:  <b>Ref. PAD C.7</b>  Board presentation:  Not applicable.  Loan/credit effectiveness:  Not applicable.  Covenants applicable to project implementation:  Not applicable.</p>	

## **A. STRATEGIC CONTEXT AND RATIONALE**

### **1. Country and sector issues**

Bosnia and Herzegovina (BiH) is situated in the southern part of Europe, covering an area of 51,129 km<sup>2</sup>. BiH is divided in two Entities: the Federation and Republika Srpska. The Federation consists of 10 cantons covering about 51% of the country's territory, and the Republika Srpska with 7 regions, about 49%. There are 137 municipalities; 73 in the Federation and 64 in the Republika Srpska. The municipalities are local, administrative units within the Entities. Infrastructure systems for water supply and sewage are managed by public utility companies under municipal jurisdiction.

The Neretva and Bosna Rivers are the focus of the proposed project. The Neretva River Basin drains into the second largest area in BiH that discharges from BiH into the Adriatic Sea. The other large rivers such as Una, Bosna, Vrbas and Drina are tributaries of the Sava River, which forms the northern boundary of BiH with Croatia and are part of the Danube system. The Neretva River originates in BiH and flows through Croatia only for 20 km before entering into the Adriatic Sea. The Neretva River has a strong impact on the water quality of the Bay of Mali Ston and is of great economic importance to Croatia. For BiH, the Neretva River is a source of hydropower, drinking water and irrigation. For Croatia, the Bay of Mali Ston is important for the production of oysters for local consumption and export. The Neretva Delta is a Mediterranean wetland of international importance, as evidenced by its designation as a Ramsar Wetlands site. The Neretva, however, is also a source of pollutants for the Adriatic and Mediterranean.

The Bosna River Basin covers the largest and most developed area of the Federation part of BiH. The Bosna River flow begins in the territory of BiH and is about 260 km long, including the area from Vrelo Bosne (source of the scenic Bosna River) to the inter-entity boundary line at the mouth of the Sava River. The Bosna River Basin is the most populated region of BiH. The most developed regions in the country, in industrial terms, are found along this river. Wastewater from communities and industrial facilities - the concentrated polluters - discharges directly into the river, most of it without any treatment. The Bosna River is a source of pollutants for the Danube, where it eventually drains.

The project would address the environmental degradation of the Neretva (Mediterranean Basin) and Bosna Rivers (Black Sea Basin), coordinate regional priorities and develop a Wastewater Improvement Plan (WIP) for BiH. The WIP would clarify the institutional framework for Wastewater Management; further improve the cooperation with institutions in Croatia and Serbia and Montenegro; build a network of public and private institutions needed for effective wastewater treatment; and prepare the groundwork for innovative low-cost wastewater treatment methods. The Government is aware of the need for extensive planning and preparation and for full cooperation from regional countries before developing the WIP.

BiH seeks to promote cooperation with surrounding countries in managing transboundary water resources. It is a member of the International Commission of Protection of the Danube River (ICPDR) and the Danube-Black Sea Program (Dablas) as a full member of the Danube and Black Sea Conventions. On July 11, 1996, BiH and Croatia signed an agreement to establish a framework for water management. Since that ratification, three sub-agreements on specific projects have been negotiated, and signatures are pending. Both countries support the Barcelona Mediterranean Convention of 1976 for the prevention of pollution of the Mediterranean, and have signed and ratified all its protocols. In addition, Croatia, Serbia and Montenegro and BiH signed the Framework Agreement on the Management of the Sava River in December, 2002.

Currently, the Ministries from the respective countries are implementing the Strategic Action Program to address pollution from land-based activities in the Mediterranean Region (SAP MED). The main objective of the MEDP SEA is to facilitate the recipient countries of the Mediterranean Sea basin in implementing their top transboundary priority pollution reduction to reversing the degradation of its freshwater basins. The proposed project would assist implementing SAP MED in BiH. The Neretva River investments would advance the regional program by targeting pollution reduction under SAP MED for municipal wastewater.

## **2. Rationale for Bank involvement**

BiH has stressed the importance of addressing the environmental degradation of the pollution of transboundary-rivers and has been asking for Bank assistance since 1998. It has repeatedly sought assistance to eliminate identified regionally prioritized hot spots by improving cooperation with its neighbors in managing transboundary water quality. Since the Bank became involved in the water supply and sanitation sector after the war, the Government has been requesting the Bank to start assistance in the main areas of international water pollution and further assist the capacity of local water supply and sanitation utilities.

The project would build on the accomplishments of the World Bank financed Mostar Water Supply and Sanitation Project (US\$12 million) that was made effective in December 2000, and the Urban Infrastructure and Service Delivery project approved in July 2004. The proposed project would further develop the Bank's contribution through the Mostar Water Supply and Sanitation Project, the Solid Waste Management Project and the ongoing water supply and sanitation policy and sector work that all fit within the Government's priority on environmental infrastructure. Without the Bank's support, the improvement and reform in the water and wastewater sector of BiH would progress far more slowly. The already poor water quality would continue to deteriorate, and related public health and environmental concerns would continue to increase.

Specifically, the GEF grant would help to target ways to reverse environmental degradation of the Neretva River and the Bosna River. The Bank's primary advantage is that it could serve as an honest broker in supporting the dialogue on pollution control issues. The Bank could further improve ongoing communication between the countries, which would need to reach agreement on origination of water polluters and monitoring and evaluation of water quality and expand this cooperation to other neighboring countries.



### **3. Higher level objectives to which the project contributes**

The Country Assistance Strategy for BiH (Report No: 29196 – BA) stresses the importance of developing and maintaining infrastructure. The CAS confirms that only about 40 percent of the urban population has access to sewerage services. The challenges are cited to improving water pollution control and conservation of wetlands. In addition, the estimated limit on private and public external borrowing for external borrowing for investment purposes over the period constitutes a critical constraint to bridge the investment financing gap. The GEF grant project will assist to leverage funds to improve the pollution of the Adriatic Sea and the Danube Basin.

The project is consistent with the objectives GEF Operational Programs (GEF-OP) No. 2 *Coastal, Marine, and Freshwater Ecosystems*; GEF-OP No. 8, “*Waterbody Based Operational Program*”, which focuses “on seriously threatened water-bodies and the most important trans-boundary threats to their ecosystems”. GEF-OP No. 9 *Integrated Land and Water Multiple Focal Area*; No.10 *Contaminated-Based* and GEF-OP No. 12 “*Integrated Land and Water Multiple Focal Areas Operational Program*”. The project component of the Bosna River would fall under GEF-OP No. 8 as part of the Danube/Black Sea Basin Partnership and the Neretva River under GEF-OP No. 10 demonstration to implement the Strategic Action Program in the Mediterranean Region (SAP MED).

## **B. PROJECT DESCRIPTION**

### **1. Lending instrument**

The lending instrument would be a grant from GEF to the Government of BiH through the Federation Ministry of Finance to the related utilities.

### **2. Program objective and Phases [if applicable]**

Not applicable.

### **3. Project development objective and Global Environmental objective and key indicators**

The project development objective is to further strengthen the capacity of local utilities and reduce pollution from municipal sources into the Neretva and Bosna Rivers. The global objective is to reduce municipal pollution and nutrients in the Adriatic Sea and the Danube Basin. The sub-objectives are: (i) develop the Wastewater Improvement Plan; (ii) further strengthen the Joint BiH/Croatian Working group<sup>1</sup>, with coordination from Serbia and Montenegro to implement the Wastewater Improvement Plan; (iii) develop and implement high-priority, low-cost water capital investments; and (iv) disseminate information in BiH and the region for replication of project activities at other priority sites in the Balkans. The Bank could further improve ongoing communication between the neighboring countries, which would need

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<sup>1</sup> Inter-State Commission for Water Management is composed of personnel from key Ministries that are involved in water management and environmental pollution.

to reach agreement on origination of water polluters and monitoring and evaluation of water quality and expand this cooperation to other neighboring countries.

**Key indicators:**

- Completion of the Wastewater Improvement Plan.
- Regional cooperation and replication in the Balkan region.
- Reduction of municipal-based pollution.

The set of monitoring (physical/technical) and performance indicators (operational and environmental) that will be monitored and reported on a timely basis by means of Project Management Reports (PMRs) have been agreed during project preparation and confirmed during project appraisal. These include:

- annual reduction of nutrients discharges (P and N kg/year);
- average operation cost of nutrient reduction process (US\$/kg of nutrients);
- annual reduction of BOD discharges (tons/year);
- average operation cost of the BOD reduction (US\$/kg of BOD).

#### **4. Project components**

The proposed project would have the following components: Reduction of river pollution in BiH; High-priority Investments; Natural Wastewater Treatment Pilot; Project management; and Replication, Information Sharing and Implementation.

**Component A:**

**Reduction of river pollution in BiH (US\$0.45 million - GEF)**

This component would provide the basis for all further actions for a Wastewater Improvement Plan for reducing river pollution. It would consist of the following components:

**Data Collection:**

- Examine existing laws and regulations for discharge of effluent for the various river regimes;
- Describe existing institutional arrangements;
- Determine river flow regimes and pollution levels;
- Identify polluters and levels of pollution; and
- Determine requested measures for reducing pollution and the cost.

**Data Review and Plan Development:**

- Review all collected data;
- Develop a phased nutrient reduction plan in accordance with priorities in order to sustain adequate river basin water quality and estimate its cost;
- Develop a long-term river quality monitoring program;

- Develop a financing plan;
- Analyze economic benefits of clean rivers; and
- Propose required institutional improvements including coordination with riparian countries.

**Component B: High-priority investments (Total: US\$16.39 million; GEF US\$6.44 million)**

- a) Mostar (Neretva River), 100,000 inhabitants, proposed investments  
Mostar is the main polluter of the Neretva River. It discharges all raw sewage into the river. The project would finance a first stage of construction for the central town area, consisting of sewage main collectors along the narrow river valley and an effluent treatment unit.
- b) Zivinice<sup>2</sup> (Spreca River) 45,000 inhabitants, proposed investments  
Zivinice discharges raw sewage into the Spreca River, which flows in the Modrac Lake. This lake is the main water source for the whole Tuzla region. The project would finance some main sewage collectors and upgrade of a sewage treatment plant.
- c) Trnovo (Zeljeznica River) 2,200 inhabitants, proposed investments  
The rehabilitation of the Trnovo sewage treatment plant is a very high priority. The project would finance the rehabilitation of this treatment plant.
- d) Odzak (Bosna River) 10,000 inhabitants  
The rehabilitation of the treatment plant is needed. Since there is flat land available near the river, the feasibility of biological sewage treatment in lagoons would be investigated. The project would finance some sewer rehabilitation, an outfall pipeline to the river for treated effluent and a sewage treatment plant.

**Component C: Natural Wastewater Treatment Pilot (Total: US\$1.48 million; GEF US\$1.28 million)**

A feasibility study will be prepared on low cost natural treatment of wastewater taking into account conditions such as climatic, hydrogeological (sensitive karst area) and land management relevant to the Bosna and Neretva Rivers. The study will assist to demonstrate appropriate investments for low cost/low energy treatment for small towns and settlements in the municipalities. It is planned that in the long run, this will be replicated in other parts of BiH.

**Component D: Project Management<sup>3</sup> (Total: US\$0.31 million)**

This component would include management of the project; monitoring of the project; and training for Utilities and local governments on project implementation. This would include the follow up of the Water Law currently in preparation with assistance from the European Union, planned for adoption by the Government in 2005.

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<sup>2</sup> If local or donor financing is not made available for Zivinice aside from GEF funds, it has been agreed with local officials that the Zivinice component will be excluded from the project.

<sup>3</sup> No GEF funds will be used for project management.

## **Component E: Replication, Information Sharing and Implementation (Total: US\$0.75 million; GEF US\$0.40)**

This would finance financial management training for institutional strengthening and capacity building for the utilities and drafting of annual Business Plans for each Utility. This would also finance replication of the project findings in the region. Specifically, a monitoring, updating and implementation of the Action Plan, coordination with water utilities and international counterparts (from Croatia and Serbia and Montenegro) through bi-annual meetings, a review of the implementation progress reports, social and economic assessments, environmental monitoring information along with lessons learned under the project, will be followed by recommendations on measures to be adopted to suit other geographical locations. A major part of the technical assistance would focus on the stumbling blocks for replication. The lessons learned would be disseminated through one regional/national/international seminar for design institutes and water utilities. It will also include a public awareness campaign to increase the understanding of the proposed investments and policy actions.

### **5. Lessons learned and reflected in the project design**

Since 1996, the World Bank has implemented a number of projects in urban service delivery, notably in the energy and water and sanitation sectors. The Water, Sanitation and Solid Waste Urgent Works Project (TF-24032-BA of US\$20 million, 1996) was the first International Development Association (IDA)-financed water project initiated after the war. Its success was due to a high level of commitment, municipalities and State as well as high management capacity of the executing agencies involved.

The Mostar Water Supply and Sanitation Project (Credit 3400-BOS of US\$12 million, 2000) is the second IDA-financed water and sanitation project. Lessons learned from the Mostar project are that goals of financial viability must be realistic and that recipient buy-in is needed for all programs.

The Solid Waste Management Project (Credit 3672-BOS of US\$18 million, 2002) demonstrated that it is cost-effective to improve solid waste services through the establishment of regional landfill sites based on inter-municipal coordination. Sector development objectives relate to cost savings and consolidation by creating multi-municipal landfills through inter-municipal Boards.

The utilities and institutions that benefited from the extensive dialogue and relationship built with the Government began in 1996 are now able to transfer knowledge and assist new Recipients. The PC for Water Management of Sava Catchment - Sarajevo and Adriatic Sea catchment – Mostar (PCWM) which implemented the first Urgent Works Project has agreed to provide technical assistance to the new Utilities. This cooperation by existing and past Recipients and institutions will greatly facilitate the start-up phase and foster the transfer of knowledge and information.

### **6. Alternatives considered and reasons for rejection**

***No Stand-alone PIUs.*** It was agreed that implementation would be undertaken by Government institutions without the involvement of stand-alone Project Implementing Units (PIUs). Even

though it is far more complicated to entrust the responsibility for project implementation to Government departments, such an arrangement would result in far more intensive and extensive capacity building. Mainstreaming of PIU activities into Government institutions is a core objective for both the Government supported by the Bank, and will be followed in all new projects.

**GEF Portfolio.** The GEF portfolio consists of two projects currently involving the Neretva River. During the early phases of project preparation, discussions were held whether to have two separate projects or one larger program. It was agreed to proceed with two different projects because the Water Quality Project addresses the phased approach of wastewater and water quality and would work directly with utilities. The other project, the Integrated Ecosystem Management Project under preparation by ECSSD addresses wider River Basin Body Management issues working across sectors reflecting the multiple uses of the River Basin resources including agriculture, irrigation, water, environment, energy and transport. The Integrated Ecosystem project will benefit from the water pollution control interventions which will be improved through the Water Quality project. Full coordination is taking place between the two programs to share information and to avoid duplication of activities.

## **C. IMPLEMENTATION**

### **1. Partnership arrangements**

Unfortunately, many donors are withdrawing from infrastructure financing or focusing more on technical assistance. The World Bank will continue to work with the Government of Spain through co-financing on this project and continue to seek additional partnerships to assist with coordination, co-financing and training (see Annex 2 for related projects financed by the Bank and other Agencies).

### **2. Institutional and implementation arrangements**

The project would be implemented during FY 2005-2010 under the overall responsibility of the Ministry of Agriculture, Water Management and Forestry. A Project Management Team (PMT) has been established to handle procurement and financial management aspects. The PMT is staffed by qualified personnel of the Ministry of Agriculture, Water Management and Forestry and PCWM.

Project Implementing Teams (PITs) would be located in each Utility (Mostar, Zivinice, Trnovo and Odzak). The PITs would consist of a Procurement Officer and Financial Officer. The PMT would have overall responsibility for implementation, including procurement and financial management, the PITs would handle day-to-day matters. The PITs would conduct all procurement in coordination with the PMT and then submit to the PMT for clearance. Once cleared by the PMT, the procurement documents would be submitted to the Bank for clearance. The contracts should be signed only by the Utility Director, as the actual Grant Recipient should ultimately be the one signing the contracts.

### **3. Monitoring and evaluation of outcomes/results**

The monitoring and evaluation of outcomes and results during implementation would follow standard Bank practice. The Project Management Team (see Project Implementation Arrangement) would collect and present data and reports from the Project Implementing Team for bi-yearly review by the Bank in conjunction with supervision missions. Data would also be provided by the Project Management Team data management systems. Discussions during supervision related to institutional capacity building, financial viability, technical reviews and site visits would provide an especially effective means of monitoring progress.

An innovative approach would be used to monitor user satisfaction. Following the model provided by and in conjunction with the Urban Infrastructure and Service Delivery Project, a score card system would be used at the local level to ensure community participation in the monitoring process. Periodic scoring would provide of means of tracking change (see Stakeholder Involvement, section 3.d above).

### **4. Sustainability and Replicability**

The sustainability of the project would largely depend on: (i) achieving financial viability by gradually decreasing inefficiencies and increasing revenues to cover adequate operating and maintenance expenditures and debt service; and (ii) adequate prioritization of infrastructure development by ensuring that all investments are the least cost and adequately maintained.

The sustainability of the project would depend on achieving financial viability by gradually decreasing inefficiencies and increasing revenues to cover adequate operating and maintenance expenditures and debt service; and adequate prioritization of infrastructure development by ensuring that all investments are the least cost and adequately maintained.

The GEF project will be consistent with other projects that are being implemented in the water supply and sanitation sector in BiH. Similar to other operations involving utilities, the project would assist the utilities under the project to (i) establish commercially oriented business type practices, and (ii) become financially self-sustaining through the preparation of yearly Business Plans.

During preparation, the project is assisting the Utilities by defining the overall purpose of a Business Plan and how the plan elements can help in managing the water company. The Utilities would be asked to develop a yearly Business Plan for their operations and services. The Business Plan would show the overall targets for each year, for example, in terms of the increase of the number of people to be served, including the poor; intended improvements in the quality of water; improvements in the collection-to-billing ratio; reduction of energy per m<sup>3</sup> and of the staff per 100 connections; and increases in tariffs and cost-recovery levels, up to their breakeven points. The Utilities would incorporate the planned improvements in institutional capacity, such as a billing and collection system, tariff policy and structure and proper financial accounting and reporting that should lead to the strengthening of the commercial and financial management capacity.

Another result of the Business Plan would be the updating of the financial statements (income statement, balance sheet and cash flow statement) during project implementation. This practice would be new for the Utilities and assist in managing all of their resources and define measures, toward the planned targets, and determining which ones directly affect financial performance.

Because of the differences in institutional capacity and financial performances in the water supply and sanitation Utilities, the Utilities would be grouped in two categories. Mostar and Zivinice are expected to become financially viable and cover all their operating and maintenance during project implementation. Odzak and Trnovo would also be expected to reach financial viability and cover all operation and maintenance costs but the target for these smaller utilities would be to gradually improve their financial standing during the course of project preparation.

The utilities and institutions that benefited from the extensive dialogue and relationship built with the Government that began in 1996 are now able to transfer knowledge and assist new Beneficiaries. PCWM has agreed to provide technical assistance to the new Utilities (Zivinice, Odzak and Trnovo). This cooperation by existing and past Recipients and institutions will greatly facilitate the start-up phase and foster the transfer of knowledge and information.

The project will support the design of training modules on integrated wastewater treatment processing, support training in environmental policy for law enforcement agents on wastewater management (e.g. municipalities, municipal and regional inspectorates, environment authorities and the private sector) and will coordinate and organize an implementation conference on wastewater management for the regional information transfer in one of the sites at the end of the Project. With these activities, the project will not only support the establishment of links and partnerships between the cities of the region on comprehensive wastewater management but will also provide a model and adaptable curriculum in enable implementation of the new processes.

The project design includes TA to support replication interests in the immediate drainage area of the Balkan Region. Technical specialists working with the project will also be available to share their experience and the lessons learned under the project through joint meetings, training session and conferences organized in support of the UNDP/UNEP regional projects as part of the Black Sea/Danube Program and MED SAP. They would also be available to assist in the identification of future project sites and activities that would most profit from the replication of the project approach. The models and modalities refined under the project, moreover, are expected to also attract additional funding and invest support by other donors.

As the Neretva and Bosnia Rivers run both through BiH and Croatia, cooperation between both countries is needed in various sensitive areas. The project would further strengthen the Joint BiH/Croatian Working group, with coordination from Serbia and Montenegro to implement the Wastewater Improvement Plan (WIP). Discussions are also underway with various donors active in the sector to also assist with the WIP and to disseminate information in BiH and the region for replication of project activities at other priority sites in the Balkans.

## 5. Critical risks and possible controversial aspects

<b>Risk</b>	<b>Mitigation Strategy</b>
Complicated institutional structure and layers of Government will prevent consensus.	The World Bank, with its extensive policy and investment experience in BiH, would take the lead to ensure that all levels of Government are involved and project approval would be based on conditionality of cooperation and consensus of State, Entity and local government.
Projects of different donors are uncoordinated and give mixed signals to the BiH Government on approaches and methodology.	All partners have emphasized the need to address and coordinate on the Wastewater Improvement Plan.
Institutional capacity at the water Utility level is limited.	The Public Company for Water Management has successful experience in implementing and operating international projects and would work closely to transfer knowledge to the utilities.
The wastewater treatment process would be too expensive to operate.	The most cost-effective option would be selected for the nutrient removal process. The utilities will undertake public communications campaign during project implementation to increase the willingness to pay.

## 6. Grant conditions and covenants

### Effectiveness Conditions

- (a) A Sub-Grant Agreement has been signed on behalf of BiH and the Federation on terms and conditions satisfactory to the Bank.
- (b) A Project Agreement has been signed on behalf of the Bank and the Federation on terms and conditions satisfactory to the Bank.
- (c) A Subsidiary Grant Agreement has been signed on behalf of the Federation and a Sub-Grant Agreement has been signed on behalf of one of the water supply and sanitation utilities, on terms and conditions satisfactory to the Bank.
- (d) The Operational Manual, satisfactory to the Bank, has been adopted by the Recipient and the Federation.



## Implementation

- (a) The utilities would be asked to develop a Business Plan on a yearly basis for their operations and services. The Business Plan would be due on October 30 of each year.

## **D. APPRAISAL SUMMARY**

### **1. Economic analyses**

Economic cost/benefit analysis is difficult to apply to environmental projects such as the proposed water quality protection project because there is no market for the output of the project. As a consequence, it is difficult to measure benefits reliably. The water quality protection project will primarily benefit those who live downstream from the primary sources of pollution that the project will mitigate. Many of the benefits are of such a nature that their monetary valuation is tenuous since the preservation and restoration of an ecological balance entails intangible benefits, for the present and future generations.

Given the impracticality of assigning a monetary value to the benefits from the project the economic analysis has been restricted to ensuring that the expected benefits are produced at the least cost to the economy. This analysis comprises a number of steps:

- The demand for the collection of wastewater, for its treatment, and for its safe return to the environment is carefully projected. The projections must ensure that water consumption patterns are reasonably efficient. In the case of Mostar this is clearly true since the wastewater investments follow the Mostar water supply and sanitation project where a primary objective was to build the institutional capacity to reduce wastage and promote economic and financial efficiency. In the survey that the Mostar vodovod conducted at the project conclusion a substantial share of the respondents stressed that they wished more resources be invested in wastewater treatment, proving the value that the population assigns to the proposed project;
- Different technical alternatives are then analyzed to find the cheapest way of collecting, treating and safely disposing of the wastewater from the project towns. In particular, the project attempts to minimize the costs of treating wastewater by limiting the treatment capacity to the first stage for the Mostar sub-project, for upgrading the existing Zivinice wastewater treatment plant; for rehabilitating the existing treatment plants in Trnovo and Odzak, and for considering the introduction of low-cost treatment in lagoons in Odzak. The experience proves that optimizing already existing capacity is the least cost solution;
- Each of the technical alternatives is then costed, using economic prices. Such calculations should exclude non-economic costs such as taxes, subsidies and other transfer payments. The cost comparisons should be done in constant prices that exclude the effect of general price inflation;

- The annual costs in economic terms of each alternative are then made comparable by discounting them by the opportunity cost of capital, producing a present-value sum of the economic costs;
- The alternative with the lowest present value sum is then selected.

Additionally, an environmental cost effectiveness analysis is possible on the basis of the monitoring indicators such as the annual reduction of nutrient discharges of nitrogen and phosphorus, the average operating cost of the process to reduce nutrients, the annual reduction of BOD discharges, and the average operating cost of the BOD reduction. The project objective of exploring the possibility of low cost lagoon treatment in Odzak is particularly relevant because of the potential for lowering operating costs, and in particular energy costs. Similarly, the component to prepare for natural wastewater treatment in the lower Neretva River and in the lower part of the Bosna River is relevant in the drive towards reducing annual operating costs in the treatment processes.

### **Financial analysis**

A cash flow analysis will be made of each utility and sub-project during the implementation period and during the first few years of operation to ensure adequate funding of operations and maintenance expenditure. The cash flow forecasts are central to avoid undue delays in project commissioning because of insufficient funding of investments and to increase the likelihood that the project facilities will be operated and maintained in a fashion that will guarantee sustainable levels of benefits.

## **2. Technical**

This project would address an issue of high priority in BiH: the pollution of its rivers. It is general practice in BiH to discharge untreated wastewater into rivers. Where treatment plants exist, they are either not functioning or effluents do not comply with the quality standards. The cost of change will be enormous. After the war, the Government and donors invested mainly in rehabilitating water supply systems. Sewerage and sewage treatment was not a priority. Now the situation is changing. After water supply has been improved considerably, awareness for the need to protect the environment is rising.

The project addresses this issue in two ways:

1. By assisting to establish a WIP for reducing river pollution in BiH. The first step would be the data collection and the assessment of required measures to reduce pollution. A second step would be to review the data and prepare priority plans and a monitoring plan. The Action Plan would be supervised and monitored.
2. By assisting in financing high-priority investments for reducing river pollution. For Mostar, it would be protection of the sensitive Neretva River ecosystem, including the wetlands near the Adriatic Sea. For Zivinice, it would be to avoid pollution of the Modrac

Lake. For Trnovo, it would be the protection of important surface water course. For Odzak, it would be for the reduction of pollution in the Sava River.

### 3. Fiduciary

***Fiduciary appraisal.*** A fiduciary assessment has been carried out to determine the acceptability of fiduciary risks in the project. Preliminary assessment indicates that Ministry of Agriculture, Water Management and Forestry and PCWM have experience in implementing Bank-financed projects but considering several changes in the Bank's fiduciary requirements in the past three years, the staff will need to get up-to-date on the Bank's current requirements. PCWM are audited by the entity Supreme Audit Institution (SAI) but the audit is not done on an annual basis.

### 4. Social

The social assessment for the project has been based on a composite of the social assessments conducted for three Bank projects in the sector. These assessment varied slightly in their structure and focus (water supply, sanitation, and solid waste), but commonly: identified primary and secondary stakeholders; collected baseline data including socio-economic data and access to services; identified and prioritized the most critical interventions to improve service delivery; identified community perceptions of the negative impact that inadequate service delivery has on the community from a social perspective, including poverty, health, and employment; and proposed a communication or information strategy for project implementation including a monitoring plan.

The methodology for the assessments built upon: (i) face-to-face interviews based on a standardized questionnaire; (ii) focus group discussions with target groups drawn from (a) representative beneficiaries and (b) primary stakeholders, including Non-Governmental Organizations (NGOs); and (iii) in-depth interviews with representatives of local municipal government, utilities and other service providers, and key informants.

The findings provided by these assessments validate the concerns of the government in support of improved handling of sewage as a social priority and perceived need. The project itself and feedback from the community during implementation should also serve as a reinforcement of this concern by government. The majority of respondents placed sanitation and sewage treatment high on the list of community needs. The variations reflected the actual situation in the specific community, but the respondents readily saw the impact of untreated sewage not only on their immediate but also quite distant neighbors and the global ecology. Respondents were willing to cover some of the cost of addressing improved sewage treatment. They highlighted the negative impact sewage discharge was having on traditionally valued scenic and recreational areas as well as on health. They recognized the value of in-country action as part of regional cooperation to meet global responsibilities.

Inadequate collection and treatment of sewage was seen to have significant social consequences; respondents maintained that the return of displaced persons and refugees would be greater if communities had adequate infrastructure and service provision. Two of the communities included in the project, for example, had just about initiated service on the then new plants that

were subsequently destroyed in the war. The progress these facilities were to bring was eroded with depressing quickness. Disparities in service levels within municipalities were also causing congestion problems as residents clung to those areas with better services. Respondents also saw disputes over service provision as a drain on social capital. Respondents also saw improved service delivery as not only important for poverty reduction, but also as a precondition for a return of economic and cultural vitality. Community members were willing to be involved in community action to support improvements in service delivery and cost recovery.

Building a sense for local ownership of the improvements and reinforcing the willingness to pay for improved services will be the core of an education campaign and stakeholder plan under the Urban Infrastructure and Service Delivery (UISD) Project (approved July, 2004). Both the educational campaign and stakeholder plan will be blended with the GEF project. This campaign will build upon existing institutions, including the former neighborhood councils, or “mjesna zajednica”. Mjesna zajednica, translated as “local community,” is the smallest administrative unit in BiH that used to report to the municipalities on key issues and also provide some social needs at the neighborhood level.

The stakeholder plan to be followed by the NGO under the UISD Project will include the formation of a user/stakeholder committee at the local level under the neighborhood councils. The stakeholders will participate in the review of any local issues and advise on the design of the community score cards to be used for monitoring user satisfaction. These cards will be periodically scored by the stakeholders with the facilitation of the NGO to show change over time. The NGO will also link to local educational and health facilities at the municipal level and, where relevant, include them as stakeholders on the committee. The materials developed for the local councils will draw on any existing literature available, and liaison between these agencies and the councils/committees will be encouraged. The objective will be to generate a better understanding of the social and economic importance of the benefits of good environmental management by the beneficiaries as well as by local administrators. Community awareness of good environmental management will also increase the willingness to pay user charges to sustain the cost of operation and maintenance. The plan will subsequently be used as a pilot for replication at the national level.

This same model will be used for the education campaign and stakeholder plan for the GEF Project. In this case, however, the utilities will staff their own internal customer service offices to facilitate the monitoring process at the local council level. The customer service offices will operate on the basis of the lessons learned by the NGOs under the UISD Project, accepting responsibility for the facilitation modeled by the NGO. As a result both institutional and social capital will be strengthened, and the score card monitoring process will become a sustainable component of utility operations at the community level.

## **5. Environmental**

Major changes in the Adriatic Sea have been attributed to very high levels of eutrophication with impacts on the habitats of endangered species and biological diversity generally. The components of the Project have been specifically designed to address a significant source of nutrient pollution of the Adriatic Sea and on to the Mediterranean Region from Bosna by means of: (i) reducing pollution from land-based activities, mainly from improved processing of

wastewater discharges, and (ii) advancing the regional program for the conservation of wetland and coastal ecosystems, by undertaking a feasibility study on low-cost natural treatment of wastewater.

In the first case, the particular focus is on discharges into the Bosna, Neretva, Zeljeznica, and Spreca Rivers. The Neretva River Basin drains the second largest area in BiH. The Bosna and Neretva Rivers are key drainage systems in BiH.

Efforts to reduce flows of untreated waste waters into these rivers would have a major impact on discharges into the Sava River and the Adriatic. The Zeljeznica River is a tributary of the Bosna River. The Spreca River flows into Modrac Lake which is the main water source for the whole Tuzla region.

Physical investments under component B focus on the rehabilitation or construction of sewage main collector systems and treatment plants for four communities: Odzak on the Bosna River, Mostar on the Neretva River, Trnovo on the Zeljeznica River, and Zivinice on the Spreca River. Some additional investments may be identified during implementation, but they would be of very minimal scale and cost. The total package of investments would significantly reduce current discharges into these rivers at points upstream of major drinking water intake sources in the basins. In this manner, they would improve the drinking water quality for a substantial number of inhabitants in the region and lead to their improved health conditions.

The Environmental Assessment (EA) for each site, including an Environmental Management Plan (EMP), has been submitted to the Bank, and publicly disclosed in-country, and is available to the public through the World Bank INFO Shop. The EMP includes: (i) mitigation plan, (ii) monitoring plan, (iii) implementation schedule, (iv) institutional arrangements for effective environmental management, and dates and minutes of the public consultation undertaken during the preparation of the EA/EMP.

The primary environmental issues are the short-term impacts related to construction or rehabilitation. These include, for example: dust, noise, engine exhausts from equipment, disruption of traffic, and disposal of wastes. All contracts for works under the project will include specifications to be followed at work sites that follow international best practice; compliance will be ensured by local sub-project site managers. The primary environmental issues during operations would include the storage and handling of chlorination chemicals and the disposal of sludge arising from water purification and wastewater treatment. The mitigation plans in the EMPs cover both types of impact.

All environmental issues have been discussed and cleared by the Europe and Central Asia (ECA) Regional Environmental Unit of the World Bank. In order to assure compliance with the operational policy and procedures of the Bank and the Entity, an Environmental Framework Policy has also been prepared and will be presented to the Bank for clearance. This document will be attached as an annex to the Operational Manual. It will include procedures and institutional responsibilities for future screening, especially under component C, where EA documentation, consultation, disclosure, and monitoring would be required. It also includes procedures to be followed in the case of chance finds (see Annex 10).

The institutional capacity for all organizations identified with designated responsibility for the implementation of the EMPs and any environmental screening and evaluation procedures have been examined including each of the four utilities in Mostar, Zivinice, Odzak and Trnovo. Although the skills of the staff were assessed as satisfactory, the EA also details the program of institutional strengthening (primarily staff training and monitoring equipment) that has been incorporated into the project to ensure appropriate capacity for successful implementation.

## 6. Safeguard policies

<b>Safeguard Policies Triggered by the Project</b>	<b>Yes</b>	<b>No</b>
<u>Environmental Assessment (OP/BP/GP 4.01)</u>	[X]	[ ]
Natural Habitats ( <u>OP/BP 4.04</u> )	[X]	[ ]
Pest Management ( <u>OP 4.09</u> )	[ ]	[X]
Cultural Property ( <u>OPN 11.03</u> , being revised as OP 4.11) was raised in ISDS but not indicated here – be consistent	[ ]	[X]
Involuntary Resettlement ( <u>OP/BP 4.12</u> )	[ ]	[X]
Indigenous Peoples ( <u>OD 4.20</u> , being revised as OP 4.10)	[ ]	[X]
Forests ( <u>OP/BP 4.36</u> )	[ ]	[X]
Safety of Dams ( <u>OP/BP 4.37</u> )	[ ]	[X]
Projects in Disputed Areas ( <u>OP/BP/GP 7.60</u> )*	[ ]	[X]
Projects on International Waterways ( <u>OP/BP/GP 7.50</u> )	[X]	[ ]

## 7. Policy Exceptions and Readiness

The project will clearly positively impact on water quality in the region by (i) reducing effluent pollution, (ii) promoting action planning for the reduction of river pollution in BiH, and (iii) promoting wetland conservation, and (iv) reducing nutrients.

The most immediate impact would come from the high priority investment under component B of the project. OP 7.50 applies to any water project that involves “the use or potential pollution of international waterways.” It specifically exempts from the notification requirement “minor additions or alterations” to existing schemes that “will not adversely change the quality or quantity of water flows to the other riparians.” Since by design these investments seek to improve the water quality of four rivers in the region, the project meets this definition. Reduced downstream flow of pollutants eventually into the Adriatic would have positive regional/global implications.

On this basis, an exemption to the notification of riparians was deemed justified, and the exemption has been approved by the Office of the Regional Vice President.

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\* By supporting the proposed project, the Bank does not intend to prejudice the final determination of the parties' claims on the disputed areas

## **Annex 1: Country and Sector or Program Background**

### **BOSNIA AND HERZEGOVINA: WATER QUALITY PROTECTION**

The Dayton Peace Agreement of December 1995 which brought an end to the 1992-95 war created an administrative structure for the country which, while mitigating the potential for inter-ethnic tensions and conflict is rather complicated and a potential source of diseconomies. In its current form, the administrative structure consists of four layers of government. At the top, BiH acts as the central authority over two constituent Entities, the Federation and the RS, representing the second layer of government. For its part, the Federation is further divided into ten Cantons which form an intermediate and third layer of government. The Cantons in turn are divided into 73 municipalities, the forth and lowest level of government. The RS, on the other hand, has no intermediate level of government and is comprised of 64 municipalities.

Assignment of responsibilities to the different layers of government within the two Entities is organized in markedly different ways. In the Federation, the Entity government itself has only limited competencies as most government responsibilities have been decentralized to the Cantons, including many responsibilities that in most other countries would be maintained by the State. BiH itself does not have a body of specific legislation to govern lower level government as regulating local government issues is a responsibility of the Cantons. As a result, the Federation has ten different local government laws with considerable variations concerning the distribution of taxes, allocation of resources, and the assignment of municipal responsibilities. The RS, on the other hand, has opted for maintaining a centralized government approach and its Ministry of Local Government directly regulates its 64 municipalities.

Common to both Entities is that the municipalities themselves have only limited powers. The local government laws of both the Federation and RS identify the roles and responsibilities of municipalities entitle them to appropriate sources of financing for their mandatory and/or delegated tasks. In reality, however, in the Federation, the mandatory tasks of municipalities are not always clear and allow for different interpretation. There are frequent overlaps concerning operational responsibilities, ownership, capital improvement and maintenance. Moreover, each Canton is free to add or to clarify Federation delegated duties. The same pattern, though to a lesser extent, is found in the RS.

#### Local services

Responsibility for the delivery of local public services - water supply, sewerage and wastewater treatment, solid waste collection and disposal, district heating rests with municipalities in both the Federation and the RS. Typically, services are delivered by municipal companies (utilities) which operate as autonomous entities separated administratively and financially from the municipal governments, even though decisions on changes in the tariff structure are subject to municipal approval.

Most utilities are in financial difficulties. Bill collection rates are low, not exceeding 40% in many cases, with the major defaulters being found among public institutions and industries. Tariff adjustments depend on the 'goodwill' of municipal authorities and are generally perceived as politically unwelcome. To compensate for revenue shortfall most utilities resort to building

up inter-enterprise arrears, not paying contractors, and withholding tax payments to the various levels of government.

Sector specific issues:

*Water supply, sewerage and waste water treatment:* The quality of water supply in all of BiH has deteriorated markedly since 1991. While in the pre-war period up to 90% of the population in urban areas had continuous supply, its proportion has fallen to about 50% and, even where available, service is frequently only intermittent and quality of water is poor. Likewise in the case of sewerage. In the past about 70% of the population in urban areas were connected to a sewerage system whereas today only about 40% have a connection.

*Solid Waste:* Current waste collection and disposal capacities are unable to keep up with waste production. The area covered by collection services is only about 60% in larger municipalities and much lower in more rural municipalities. This leads to significant quantities of waste being discarded in unofficial sites such as wild dumps, roadsides, small village dumps, rivers, and mines; posing a direct risk to public health. Waste collected by municipalities is often disposed in "official" dumpsites, but with a few exceptions these are open dumps rather than controlled landfills. Runoff and leachate infiltration from dumpsites are potential hazards for the groundwater aquifers in some areas of BiH that provide the main source of water supply.

The Government seeks to establish legal multi-municipal disposal districts where a single existing landfill site can be rehabilitated and used for disposal of the waste generated by several municipalities. The number of sites should be consolidated to minimize investments and operating expenses for landfills and waste disposal management. Aside from the Solid Waste Management Project (\$18 million), there are limited investments in the sector aside from technical assistance.



**Annex 2: Major Related Projects Financed by the Bank and/or Other Agencies**  
**BOSNIA AND HERZEGOVINA: WATER QUALITY PROTECTION**

<b>Bank-financed</b>	<b>Project</b>
Bosnia and Herzegovina	Mostar Water Supply and Sanitation Project
Bosnia and Herzegovina	Sanitation and Solid Waste Urgent Works Project
Bosnia and Herzegovina	Pilot Cultural Heritage Project
Bosnia and Herzegovina	Local Development Project
Bosnia and Herzegovina	Community Development Project
Bosnia and Herzegovina	Local Initiatives Project
Bosnia and Herzegovina	Water, Sanitation and Solid Waste Urgent Works Project (closed and rated S by both the Implementation Completion Report and Operations Evaluation Department)
<b>Other development agencies</b>	
USAID	Water Supply, Solid Waste Flood Control and Sanitation Projects
USAID	Financial Management Training Seminars
USAID and SIDA	Municipal Grant and Capacity Building Project (under preparation)
Norway	Bijelo Polje Project
Japan	Municipal Transport Project
EPTISA/Madrid	Human Resources Project Aspects (Technical Assistance)
EC Phare Program	Institutional Strengthening of the Water Sector (Technical Assistance)
KfW	Water Supply Project
European Union	Nationwide Solid Waste Management Strategy (Technical Assistance)

**Annex 3: Results Framework and Monitoring**  
**BOSNIA AND HERZEGOVINA: WATER QUALITY PROTECTION**

**Results Framework**

<b>PDO/Global Environmental Objective</b>	<b>Outcome Indicators</b>	<b>Use of Outcome Information</b>
Overall objective: develop a regional approach in pollution reduction to further improve international cooperation and reduce the pollution from municipal sources in the Bosna and Neretva Rivers; the global objective is to reduce municipal pollution and nutrients in the Adriatic Sea and the Danube Basin.	Improved water quality in regional rivers  Increased regional institutional capacity	Preparation of regional rolling plan for sustainable reduction of pollution  Annual project reviews during supervision  Regional guidelines for project replication
<b>Intermediate Results One per Component</b>	<b>Results Indicators for Each Component</b>	<b>Use of Results Monitoring</b>
Component A: <i>[Action Plan]</i> Collaborative planning and data collection	Component A: Completed Wastewater Improvement Management Plan	Component A: Data collection and sharing Identification of subsequent action requirements
Component B: <i>[High-priority Investments]</i> Systemic treatment of sewage	Component B : Monitoring and comparison with baseline data on service provision	Component B: Community score Card Annual Business Plan of Utilities
Component C: [Natural Wastewater Treatment]	Component C: Information dissemination on low cost natural treatment Public education on merits of natural treatment and overall environmental issues	Component C: Promotion and acceptance of low cost/low energy treatment. Dissemination to regions where wastewater treatment is unaffordable.
Component D: [Project Management/Monitoring] NA	Component D: Monitoring Implementation of Action Plan Set up of Working Group	Component D: Replication and information dissemination Cooperation of Working Group to share information and water quality data

## Arrangements for results monitoring

Outcome Indicators	Baseline	Target Values					Data Collection and Reporting		
		YR 1	YR 2	YR 3	YR 4	YR 5	Frequency and Reports	Data Collection Instruments	Responsibility for Data Collection
Reduction of water pollution of Bosna and Neretva from municipal sources of BiH							Annual	PMT/PIT Quarterly and Annual Reports, Supervision	MWSSU/PMT
<b>Results Indicators for Each Component</b>									
<b>Component A:</b> Development of the WIP							Once in nine months after the project effectiveness	PMT/PIT Annual Report, Supervision	MWSSU/PMT
<b>Component B : Reduction of discharges from Municipalities involved in the Project</b>  BOD discharges by 50% N-discharges by 50% P-discharges by 20%							Twice a Year	PMT/PIT Quarterly and Annual Reports, Supervision	MWSSU/PMT
Implementation of investments									
<b>Component C:</b> Feasibility Study for Natural Wastewater Treatment component.							Twice a Year; to be completed after two years after the project effectiveness	PMT/PIT Quarterly and Annual Reports, Supervision	MWSSU/PMT

## MONITORING AND EVALUATION

The monitoring and evaluation of outcomes and results during implementation would follow standard Bank practice. The Project Management Team (see Project Implementation Arrangement) would collect and present data and reports from the Project Implementing Team for bi-yearly review by the Bank in conjunction with supervision missions. Data would also be provided by the Project Management Team data management systems. Discussions during supervision related to institutional capacity building, financial viability, technical reviews and site visits would provide an especially effective means of monitoring progress.

An innovative approach would be used to monitor user satisfaction. Following the model provided by and in conjunction with the Urban Infrastructure and Service Delivery Project, a score card system would be used at the local level to ensure community participation in the monitoring process. Periodic scoring would provide means of tracking change (see Stakeholder Involvement, section 3.d above).

**GEF-Specific Table for Project objectives and approaches for Monitoring,  
Evaluation and Implementation**

<b>Activity</b>	<b>Indicators Process (P), Environmental Stress Reduction (SR), Environmental Status (ES)</b>	<b>Achievement date expected</b>	<b>Use of outcome information</b>
Steering Working Group	The BiH national interministry steering Working Group engaging key ministries that are involved in water sector development and environmental pollution from the municipal sources and follow up with the Water Law. (Ministry of Environment, Ministry of Agriculture, Water Management and Forestry, PCWM and donors). <b>P-1</b>	September 2005	Sharing information among stakeholders, clarification of the project implementation roles, endorsement of the appropriate regulation
Regional cooperation and replication in the Balkan region	Further strengthening of a Joint BiH/Croatian Working group, with coordination from Serbia Montenegro to coordinate activities and monitoring. <b>P-2</b>	Ongoing	Sharing project outcomes, replication of the project approaches and results, establishing common standards, and development of the cooperation mechanisms
Wastewater Improvement Plan	Development of the Water Improvement Plan for reduction of river pollution in BiH and its endorsement by the Government. <b>P-3</b>	January 2006	Sharing information, increasing opportunities for the international cooperation and donor funding
Wastewater standards development	Country adoption of the affordable water/ environment standards for municipally-based pollution <b>P-4</b>	Mid-term review	Share information on development of affordable and enforceable wastewater standards as a first step in adoption of the EU water standards
Develop and implement high-priority, low-cost water capital investments in Mostar, Zivinice, Trnovo and Odzag	Nutrient pollution reduction (N and P kg discharges from the municipal sources per year) as a result of the investment program <ul style="list-style-type: none"> <li>• annual reduction of nutrients discharges (P and N kg/year);</li> <li>• average operation cost of nutrient reduction process (US\$/kg of nutrients);</li> </ul>	Though project implementation in every city	Share information within the country and the region on measurement, new approaches in wastewater treatment and monitoring procedures

	<ul style="list-style-type: none"> <li>• annual reduction of BOD discharges (tons/year);</li> <li>• average operation cost of the BOD reduction (US\$/kg of BOD).</li> </ul> <b>SR-1</b>		
Natural Wastewater Treatment	Feasibility study to rehabilitate, construct and maintain wetland area <b>SR-2</b>	Through project implementation	To set ground for the wetland protection campaign in the region
Wastewater quality monitoring	Percentage of the effluent discharged according to the national standard <b>ES-1</b>	Through project implementation and beyond	Assure sustainability of investment, replication throughout the region
Disseminate information in BiH and the region for replication of project activities at other priority sites in the Balkans	Increased stakeholder awareness and documented stakeholder involvement (number of meetings; number of publications) <b>ES-2</b>	Through project implementation and beyond	Assure sustainability of investment, replication throughout the region

## **Annex 4: Detailed Project Description**

### **BOSNIA AND HERZEGOVINA: WATER QUALITY PROTECTION**

The proposed project would have the following components: WIP for reduction of river pollution in BiH; high-priority investments; natural wastewater treatment; Project management; and Replication, Information Sharing and Implementation.

#### **Component A: Reduction of river pollution in BiH (US\$ 0.45 million; GEF)**

This component would provide the basis for all further actions for a National Wastewater Strategy for reducing river pollution. It would consist of the following components:

##### **Data Collection:**

- Examine existing laws and regulations for discharge of effluent for the various river regimes;
- Describe existing institutional arrangements;
- Determine river flow regimes and pollution levels;
- Identify polluters and levels of pollution; and
- Determine requested measures for reducing pollution and the cost.

##### **Data Review and Plan Development:**

- Review all collected data;
- Develop a phased nutrient reduction plan in accordance with priorities in order to sustain adequate river basin water quality and estimate its cost;
- Develop a long-term river quality monitoring program;
- Develop a financing plan;
- Analyze economic benefits of clean rivers; and
- Propose required institutional improvements including coordination with riparian countries.

#### **Component B: High-priority investments (Total: US\$ 16.39 million; GEF US\$6.44 million)**

- a) Mostar (Neretva River), 100,000 inhabitants, proposed investments  
Mostar is the main polluter of the Neretva River. It discharges all raw sewage into the river. The project would finance a first stage of construction for the central town area, consisting of sewage main collectors along the narrow river valley and an effluent treatment unit.
- b) Zivinice (Spreca River) 45,000 inhabitants, proposed investments  
Zivinice discharges raw sewage into the Spreca River, which flows in the Modrac Lake. This lake is the main water source for the whole Tuzla region. The project would finance some main sewage collectors and upgrade of a sewage treatment plant.
- c) Trnovo (Zeljeznica River) 2,200 inhabitants, proposed investments  
The rehabilitation of the Trnovo sewage treatment plant is a very high priority. The project would finance the rehabilitation of this treatment plant.

d) Odzak (Bosna River) 10,000 inhabitants

The rehabilitation of the treatment plant is needed. Since there is flat land available near the river, the feasibility of biological sewage treatment in lagoons would be investigated. The project would finance some sewer rehabilitation, an outfall pipeline to the river for treated effluent and a sewage treatment plant.

**Component C: Natural Wastewater Treatment (Total: US\$ 1.48 million; GEF: US\$ 1.28 million)**

A feasibility study will be prepared on low cost natural treatment of wastewater taking into account conditions such as climatic, hydrogeological (sensitive karst area) and land management. The study will assist to demonstrate appropriate investments for low cost/low energy treatment for small towns and settlements in the municipalities. It is planned that in the long run, this will be replicated in other parts of BiH.

**Component D: Project Management (Total: US\$ 0.31 million)**

This component would include management of the project; monitoring of the project; and training for Utilities and local governments on project implementation. This would include the follow up of the Water Law, planned for adoption by the Government in 2005.

**Component E: Replication, Information Sharing and Implementation (Total: US\$ 0.75 million; GEF: US\$ 0.45)**

This would finance financial management training for institutional strengthening and capacity building for the utilities and drafting of annual Business Plans for each Utility. This would also finance replication of the project findings in the region. Specifically, a monitoring, updating and implementation of the Action Plan, coordination with water utilities and international counterparts (from Croatia and Serbia and Montenegro) through bi-annual meetings, a review of the implementation progress reports, social and economic assessments, environmental monitoring information along with lessons learned under the project, will be followed by recommendations on measures to be adopted to suit other geographical locations. A major part of the technical assistance would focus on the stumbling blocks for replication. The lessons learned would be disseminated through one regional/national/international seminar for design institutes and water utilities. It will also include a public awareness campaign to increase the understanding of the proposed investments and policy actions.



## BOSNIA AND HERZEGOVINA: WATER QUALITY PROTECTION

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## **Annex 6: Implementation Arrangements**

### **BOSNIA AND HERZEGOVINA: WATER QUALITY PROTECTION**

The project would be implemented during FY 2005-2010 under the overall responsibility of the Ministry of Agriculture, Water Management and Forestry. A Project Management Team (PMT) has been established to handle procurement and financial management aspects. The PMT is staffed by qualified personnel of the Ministry of Agriculture, Water Management and Forestry and PCWM.

Project Implementing Teams (PITs) would be located in each Utility (Mostar, Zivinice, Trnovo and Odzak). The PITs would consist of a Procurement Officer and Financial Officer. The PMT would have overall responsibility for implementation, including procurement and financial management, the PITs would handle day-to-day matters. The PITs would conduct all procurement in coordination with the PMT and then submit to the PMT for clearance. Once cleared by the PMT, the procurement documents would be submitted to the Bank for clearance. The contracts should be signed only by the Utility Director, as the actual Recipient should ultimately be the one signing the contracts.

The monitoring and evaluation of outcomes and results during implementation would follow standard Bank practice (see Annex 3). The PMT would collect and present data and reports from the PITs for bi-yearly review by the Bank in conjunction with supervision missions. Data would also be provided by the PMT data management systems. Discussions during supervision related to institutional capacity building, financial viability, technical reviews and site visits would provide an especially effective means of monitoring progress.

## Annex 7: Financial Management and Disbursement Arrangements

### BOSNIA AND HERZEGOVINA: WATER QUALITY PROTECTION

#### *Financial Management*

#### **1. Summary of the Financial Management Assessment**

##### **Executive Summary and Conclusion**

An assessment to determine whether the financial management arrangements within the PMT within the Federation entity public company “Vodno Područje Slivova Rijeke Save” (Water Management for River Sava - hereinafter referred as PCWM) for the Water Quality (GEF) Project are acceptable to IDA was undertaken in March 2005 and May 2005. The assessment concluded that PMT currently satisfies Bank’s minimum financial management requirements. Although, the PMT has been newly established the PCWM staff has requisite functional experience and has had experience in implementing Bank-financed projects in the past. The financial management arrangements for PMT are considered capable of satisfactorily recording all transactions and balances, supporting the preparation of regular and reliable financial statements, safeguarding the assets, and are subject to auditing arrangements acceptable to the Bank. A summary of financial management assessment and conclusions are as follows:

<i>Financial Management Assessment</i>	<i>Rating</i>	<i>Comments</i>
1. Implementing Entity	Satisfactory	PMT though new and the staff has experience in successfully implementing Bank-financed projects.
2. Funds Flow	Satisfactory	No reliance on budget funds – PITs to provide counterpart funds.
3. Staffing	Satisfactory	Staff has technical experience and exposure to implement Bank-financed projects.
4. Accounting Policies and Procedures	Satisfactory	Good financial manuals and policies.
5. Internal Audit	N/A	No internal audit.
6. External Audit	Satisfactory	The project will be audited under a country-wide general audit agreement.
7. Reporting and Monitoring	Satisfactory	The software installed is capable of producing FMRs and other required reports.
8. Information Systems	Satisfactory	Using proven accounting software which is used in several other projects.
<b>OVERALL FINANCIAL MANAGEMENT RATING</b>	Satisfactory	

Detailed financial management assessment questionnaires are included in the project files. A report on the Review of Financial Management System is also included in the project files.

## **Country Issues**

A Country Financial Accountability Assessment (CFAA) for BiH was carried out in 2001. The CFAA identifies systemic and structural weaknesses in public sector budgeting, accounting, reporting, and auditing. However, there have been several positive developments in the past three years, most notably, implementation of a fully automated treasury system across all the Cantons in the Federation and all the regions in the Republika Srpska. The introduction of the on-line treasury system has brought about a major improvement in the accounting and reporting of budget execution at the State, entity, and cantonal levels. The draft Country Financial Management Strategy (CFMS) envisages mainstreaming of project management into Ministries and Departments, and abstain from creating stand-alone PIUs outside the ministries for implementing Bank-financed projects. This project does not require creation of a stand-alone PIU, instead a PMT is established within an existing Federation entity government company (viz. PCWM) for the purpose of coordinating the implementation of this project. PCWM works under the Federation Ministry of Water Management and Forestry (MoWM&F).

In addition, the CFAA identifies weaknesses in the country's banking sector. Consequently, the Special Accounts for the project will be opened in commercial banks assessed as acceptable to the Bank.

## **2. Financial Management Assessment**

### **(a) Implementing Entities**

The GEF grant would be provided to the Government of BiH, and it would be actually disbursed by the PMT. The main task of the PMT is to prepare and carry out financial management, supervision, reporting, and evaluation during the project implementation period. The PMT Director reports to MoWM&F. In order to ensure focused attention is given to project implementation, PITs will be created in each implementing utility. The PITs will be responsible for the day-to-day implementation of their part of the project and be required to work closely with the PMT by providing regular reports and documentation. Each PIT will have an assigned finance and accounts and procurement persons. The risk associated with the PITs is assessed as high as it is difficult to recruit and retain good quality finance and accounts personnel at the utility level. In order to mitigate this risk, a strong PMT finance and accounts unit is being created, which would provide sustained level of support and monitoring to PITs on a regular basis. Secondly, all payments to suppliers, contractors, and consultants would be made by the PMT, which would review and verify supporting documents before making such payments. This would ensure project funds are paid after thorough scrutiny and multiple reviews.

### **(b) Funds Flow**

The total project expenditures would be US\$ 20.27 million equivalent, of which US\$ 8.90 million would be financed from the GEF grant, and US\$ 5.89 million from the

entities and participating utilities. The counterpart contributions would be transferred to separate “agency” bank accounts managed by the PITs.

A single GEF Grant Special Account would be established, which would be held in a commercial bank acceptable to IDA. Also, the PMT would maintain local accounts for foreign currency payments and local “transaction” accounts for payments in local currency. Local bank balances, by way of transfers from the GEF special account, of more than 4 weeks’ expenditures, in principle, will not be allowed.

The PMT would be responsible for making all payments directly to the contractors, suppliers, and consultants. Only a small amount of funds would get transferred from the PMT to the PITs – for operating, and other petty expenses. The PITs would use the “agency” bank accounts, funded out of counterpart funds, to make payments for small operating expenses or for transferring it to PMT so that PMT could make 100% payment against the supplier/contractor invoice.

Flow of funds charts and related documents in the respective Financial Management Manuals form the basis for the project accounting procedures, and describe all tasks involved in the flow of funds and accounting. The administrative procedures for the flow of funds are established in the PMT and documented in the Financial Management Manuals.

As a result of a very structured and multi-layered control system, the risk associated with funds is considered negligible; however, the actual implementation of controls will be monitored very closely.

### **(c) Staffing**

The PMT finance and accounts function will be headed by the current Head of the Finance and Administration Department of PCWM. He has extensive functional experience and has substantial experience in implementing Bank-financed projects. He will be supported by existing accounting staff of PCWM.

Payment authorizations as described in the flow of funds diagrams are designed to ensure proper segregation of duties. All payment orders would require joint signatures.

PITs will be required to have a dedicated accountant to perform project financial management work – check and verify invoices, submit full documentation to the PMT for payment, prepare and submit monthly and other periodic reports to the PMT etc.

The risk associated with staff – the risk of PMT staff giving a second priority to this project vis-à-vis their existing duties in PCWM – is substantial. A clear cut understanding with PCWM management will be reached to ensure adequate attention is provided to the project work supplemented by intensive financial management supervision in the first couple years of project implementation.

#### **(d) Accounting and Reporting System**

PMT has installed and implemented a financial accounting and reporting software that is successfully being used in several Bank-financed projects. The software has necessary capabilities to produce the required reports and maintain a trail of transactions in verifiable manner. The finance manager has received training in operation of the software and is comfortable with its operation. Auditor has not made any adverse comments on the accounting system in their audit reports for ongoing projects using the same software. The chart of account in the accounting system is classified by component; reflect the sources of funds and can be broken down into different types of expenditures for the project. Further, it is capable of providing information on the receipt and use of funds and produce financial reports comparing budget with actual expenditures at any given time. It has adequate security levels and meets the Bank's minimum reporting requirements.

Since PITs would be making only small payments, PITs will be required to maintain simple accounts typically on memorandum basis. PITs would submit full documentation and simple reports on a monthly basis, which would be verified by the PMU for completeness, eligibility, and then recorded in the PMT's accounting system. Thus PMT's books would reflect full accounting for project activities.

These arrangements are considered satisfactory to the Bank and the risk associated with it is negligible.

#### **(e) Accounting Policies and Procedures**

Accounting procedures are set out in the Financial Management Manual. The manual contains procedures for flow of accounting information and records between the PMT and PITs. A simple and short manual will be developed for providing guidance to the PITs containing information regarding simple accounting procedures, report formats, and mandatory control procedures.

The manual is found to be satisfactory, and hence meets the financial management requirements.

#### **(f) Internal Controls**

One of the strengths in the internal control arrangements for this project is that the contracts will be executed at the PIT level whereas payments will take place at the PMT level, where the invoices will be checked independently. Moreover, the contracts will be awarded at the PIT level but the RFP preparation and bid evaluation will be supervised by the Procurement Officer at the PMT level. PITs will have dedicated accountants who would verify invoices before submitting them to the PMT for payment.

To ensure acceptable quality in construction and civil works, which is a significant component of the project, independent construction supervision consultants will be appointed at the PMT level.

The Project Financial Manual describes various internal controls including segregation of duties, regular reconciliation, regular reporting etc.

The risk associated with internal controls (reliability of financial reporting, the effectiveness and efficiency of operations, and compliance with laws and regulations) is assessed as moderate at this stage – if the controls work as envisaged then the risk will be negligible.

#### **(g) Planning and Budgeting**

PMT will prepare annual plans based on projects approved and expected to be approved for investments by utilities. PMT will coordinate closely with the PITs in preparation of its annual plan and financial budgets.

#### **(h) Audit reports for the previous years**

As the PMT is newly established, there are no previous audit reports to be reviewed.

### **3. Audit Arrangements**

**Internal Audit.** PCWM has no internal audit function. Since PCWM is a government company (not-for-profit company), it is subject to an audit by the Supreme Audit Institution of the Federation.

**External Audit.** The project financial statements will be audited annually using acceptable auditing standards and by acceptable independent auditors. Audit arrangements for the entire portfolio are handled by the Government of BiH (State) instead of by each project authority. The State Ministry of Finance and Treasury (MoF&T) of BiH had a three-year contract (2001-2003) with an international audit firm for auditing all WB-financed projects (with the exception of revenue-earning projects). According to the master audit agreement, audited project financial statements would be sent to the Bank within six (6) months of the end of the fiscal year. Audit reports include opinions on the project financial statement (including statements of expenditures), the Special Account, and on the PMT's internal control arrangements and cover all financial sources (IDA, Trust Funds, counterpart funds, etc.). The umbrella audit agreement has ensured submission of timely audit reports. The State MoF&T has finalized a contract for procuring audit services for the period 2004-06. The global audit arrangements have worked well and are satisfactory to the Association.

The auditors would audit consolidated project financial statements and issue management letter. The Terms of Reference used would be the standard ToR issued by the BiH State Ministry of Treasury.

The first audited project financial statements and an audit report from the beginning of the project until December 31, 2005 are expected by June 30, 2006.

#### **4. Reporting and Monitoring.**

The PMT would maintain separate financial records for the Project and would ensure appropriate accounting for the funds provided. They would prepare and submit quarterly Financial Monitoring Reports (FMRs) in agreed formats.

The FMRs would include:

1. Project Sources and Uses of Funds Statement
2. Uses of Funds by Project Component Statement
3. Project Balance Sheet
4. Special Account Statement Plus Local Bank Account Statement
5. Output Monitoring Reports
6. Procurement Process Monitoring (consultants)
7. Procurement Process Monitoring (Goods and Works)
8. Reconciliation of Credit Account balances

Format of Financial Statements: The PMT would also prepare annual project financial statements in the format already agreed between the Government of BiH and the auditors, which have been found consistent with the FMRs and acceptable to the Bank.

#### **5. Financial Management in PCWM**

PCWM is fully owned by the Federation entity government and is governed under the “Law on Water”. It is fully self financed and receives no budgetary transfers or subsidy from the entity government. It receives fees from water users, water polluters (industries/businesses), and a KM 20 surcharge on car registration. The estimated revenues for FY 2004 are KM 16 millions.

Since 1999, PCWM has been using accounting software developed by a local company “Promise”. The software is implemented on a single user and centralized accounting basis. It produces income statements, and balance sheet that satisfies the Federation accounting requirements. PCWM also has a separate (and stand-alone) program monitoring software. PCWM’s accounting department comprises Head – Finance and Administration, two accountants, and a cashier. PCWM has an elaborate system for awarding contracts and for making payments. All payments require at least two signatories. PCWM has its own bank accounts and does not rely on the treasury system. A quick review of internal control systems within PCWM indicates that the accountant does neither cross check rates on the invoices with the bill of quantity nor verify the arithmetical accuracy of the invoice. The accountant relies on the supervising engineering consultant to perform these functions. PCWM management has indicated that it would take steps to ensure that the accountant performs an independent verification before making a payment.

PCWM does not have any internal audit department.



PCWM is audited by the entity Supreme Audit Institution (SAI), though the audit is not done on an annual basis. The last financial year audited by the SAI was 2001 – the audit report didn't contain any significant accountability issue except commenting on the legal status of the company. The SAI auditors are currently auditing PCWM and the audit report is expected to be finalized by June 2005.

Under this project, PCWM will be asked to submit annual audited entity financial statements together with the audit report thereon.

## **6. Financial Management in utilities**

Most water utilities are generally in a perpetual financial crisis due to several reasons – the major reasons being low collection efficiency, inefficient billing systems, and high water losses. Collection rates are generally poor and range between 40% and 80% of the demand compounded by long delays in realizing collections. The largest defaulters in monetary terms being the public institutions and government agencies. Low collections results in delays in paying suppliers, partial payments to power utilities, and settling some liabilities by offsets. In financial terms, most of the utilities would fail the test of “going concern”. However, as is the case with state public utilities around the world, they continue to have perpetual existence.

Most water utilities have implemented computerized accounting system and billing system that were developed locally. These accounting systems meet the basic needs. However, the utilities would like to upgrade their current accounting systems by implementing an integrated (accounting, billing, inventory, fixed asset etc) system. The utilities are required to prepare cash-based annual financial statements and get these audited by local auditors.

The experience elsewhere in implementing IAS suggests that the switch-over has to be gradual and should be supported with substantial technical assistance. This project therefore would adopt the same approach that was adopted in the Urban Infrastructure and Service Delivery (UI&SD) Project. It seeks to prioritize the issues in weak financial management and address them in a phased manner rather than attempting to set right each and every problem at the same time. The first priority was accorded to improving collection performance and a financial covenant was included to monitor it in an effective way. Second priority was given to strengthening the billing system so as to ensure bills are issued in a timely manner and the system produces useful age-wise analysis reports for better monitoring. In this respect, UI&SD project ensures that every utility does not begin developing their own billing and collection software but instead one proven software is developed and then implemented across several utilities. Third, technical assistance is being provided to strengthen financial accounting and reporting systems under the UI&SD project.

The audit approach for the audit of utility entity financial statements will be similar to the approach adopted in the UI&SD Project. Utilities would be asked to submit annual entity financial statements audited by local auditor provided that the auditor is a member of the of the local professional accounting body that is a member of the International Federation

of Accountants (IFAC) and that the audit is conducted in accordance with national audit standards.

## 7. Financial Risk Analysis

From a financial management perspective, the proposed Project is considered a medium-risk project. A summary of the consolidated risk assessment for the project is as follows:

<b>Risk</b>	<b>Rating</b>	<b>Comments</b>
<i>Inherent Risk</i>		
1. Country Financial Management Risk	High	Based on CFAA, there is generally low financial management capacity and accountability in public sector.
2. Project Financial Management Issues	Moderate	New PMT, large number of PITs, complex coordination between PMT and PITs.
3. Banking sector	Moderate	Liquidity & credit risks in a developing banking sector.
4. Perceived corruption	High	CFAA notes pervasive corruption at all levels of the economy.
<b>Overall Inherent Risk</b>	<b>High</b>	
<i>Control Risk</i>		
1. Implementing Entity	Moderate	New PMT
2. Funds Flow	Moderate	Complex arrangements, large number of PITs to have counterpart funds.
3. Staffing	Moderate	Risk of project receiving second priority by PCWM's staff.
4. Accounting Policies and Procedures	Moderate	Implementation according to set policies will improve the rating.
5. Internal Audit	N/A	
6. External Audit	Negligible	
7. Reporting and Monitoring	Moderate	A number PITs need to report regularly.
8. Information Systems	Negligible	
<b>Overall Control Risk</b>	<b>Moderate</b>	

The following financial management risks could adversely affect project implementation:

- (i) **High corruption.** During 1999 and subsequently, serious concerns have been raised concerning fraud, waste and abuse of donor funds in BiH. This has been reported in the following studies: (a) The 2001 Corruption Diagnostic Report of the World Bank., (b) The CFAA reports an environment of pervasive corruption at all levels of the economy and governments, and (c) The 1999-2000 Business Environment and Enterprise Performance Survey (BEEPS) conducted by the World Bank and the European Bank for Reconstruction and Development (EBRD) demonstrates that BiH is amongst the bottom third of transition countries with the highest levels of state capture. Even though the project is to be implemented in an environment of perceived high corruption, the risk that GEF funds will not be used as intended is judged as manageable since a strong PMT will be monitoring the project and thus providing it independence from the actual

project implementation. Furthermore, the project has identified several steps indicated below, to minimize the risk of misuse of Bank funds.

- (ii) **Possible misuse of project funds** by the PITs or PMT. The risk of misuse or fraud will be minimized in the following ways:
- *Construction quality supervision will be contracted* to independent consultants who would monitor and certify the quality of construction before payments are made by the PMT.
  - *PITs will not be allowed to make payments to contractors* instead they will submit full documentation to the PMT for independent verification and direct payment to the contractor.
  - *Monitoring by PMT* – the PMT will have adequate staff to provide ongoing support to and supervision over the activities of PITs.
  - *Transfer of the proceeds of the credit to PITs will be minimal* as most payments would take place directly from the PMT.
  - *Disbursements linked to actual expenses* – disbursements are to be based on verifiable documents; and
  - *Intensive supervision by the World Bank*. Overall supervision, including procurement supervision, will be undertaken on a periodic basis by Bank staff.
- (iii) **Unstable and weak banking sector, may have an impact on the project implementation.** The Special Accounts for the project, therefore, would be kept in a commercial bank acceptable to the Bank. The local project accounts would be kept at the minimum.

The overall financial management risk for this project is considered to be moderate. Adequate measures are being taken by the PMT to ensure all financial risks are identified and their mitigation measures incorporated into the project operational and financial manuals. The risks would be continually evaluated and appropriate remedial measures taken during Bank's supervision missions.

## **8. Disbursement Arrangements**

It is expected that the proceeds of the Grant would be disbursed over a period of five (5) years (2005 through 2010). Disbursements from the Grant would follow the transaction-based method, i.e., the traditional Bank procedures including reimbursements with full documentation, Statements of Expenditure (SOE), direct payments and special commitments.

The CFAA Report for BiH recommended that report-based disbursement should not be introduced in the BiH portfolio at this stage because of significant risks relating to: (i) project financial management weaknesses and lack of capacity in implementing units; (ii) weak banking system; and (iii) unstable political situation and general governance problems presently affecting Bosnia and Herzegovina.

Disbursements from the Grant proceeds would be administered by the PMT. PMT is responsible for retaining supporting documentation for SOEs and making them available to GEF supervision missions, as well as to the auditors.

The table below shows the Categories of items to be financed out of the proceeds of the Grant, the allocation of the amounts of the Grant to each Category, and the Percentage of Expenditures for items so to be financed in each Category.

**Table: Allocation of Grant Proceeds**

<b>Expenditure Category</b>	<b>Amount in US\$million</b>	<b>Financing Percentage</b>
(1) Works	5,730,000	80%
(2) Goods	1,540,000	100 %for foreign expenditures, 100 % for local expenditures (ex-factory costs) and 80% of local expenditures for other items procured locally
(3) Consultant's services, and training	1,100,000	100% of foreign consulting firms and foreign individual consultants, and for training, and 80% of local consulting firms and local individual consultants
(4) Incremental Operating Costs	200,000	100% until December 31, 2006, and 90% thereafter
(5) Unallocated	330,000	-
<b>Total</b>	<b>8,900,000</b>	

#### **Use of statements of expenditures (SOEs):**

Replenishment applications should be submitted on a monthly basis and must be fully documented and supported by statements and reconciliation statements. SOE disbursements should be made for: (i) contracts for individual consultants valued at less than US \$50,000; (ii) contracts for consulting firms valued at less than US \$100,000; (iii) contracts for goods costing less than US \$100,000; and (iv) training workshops and study tours, audit fees, and incremental operating. The minimum size of application for direct payment withdrawals and the issuance of special commitments from the Grant account would be 20 percent of the Authorized Allocation to the Special Account. This documentation would be made available for the required audit as well as to GEF Supervision Missions, and would be retained by the implementing units for at least one year after receipt by the Bank of the audit report for the last fiscal year in which disbursement was made.

#### **Special Account:**

To facilitate timely project implementation, the Government of BiH would establish, maintain and operate, under terms and conditions acceptable to the Bank, a Special

Account, denominated in Euro. Before a bank is selected to hold the Special Account, the Borrower shall provide sufficient information for IDA to make an assessment of acceptability of the proposed bank.

The initial authorized allocation for the Special Account is US\$ 400,000, until withdrawals have reached US\$ 3,000,000, then the full authorized allocation of US\$ 800,000 could be disbursed.

## **9. Supervision Plan**

The frequency of supervision would be dependent on the Project's risk rating. However, during the initial stage of the project, considering moderate risk profile of the project, intense supervision efforts would be ensured. During supervision missions, project's financial management and disbursement arrangements (including a review of a sample of SOEs and movements on the Special Account) would be reviewed to ensure compliance with the Bank's minimum fiduciary requirements. The supervision mission will also visit PITs and review the financial management arrangements.

The Country FMS would review the FMRs for the project on a regular basis and the results and/or issues would be followed up during the supervision missions. The Audited Project Financial Statements for the PMT would be reviewed and identified issues would be followed up with the PMT.

## **Annex 8: Procurement**

### **BOSNIA AND HERZEGOVINA: WATER QUALITY PROTECTION**

#### **A. General**

Procurement for the proposed project would be carried out in accordance with the World Bank's "Guidelines: Procurement Under IBRD Loans and IDA Credits" dated May 2004; and "Guidelines: Selection and Employment of Consultants by World Bank Borrowers" dated May 2004, and the provisions stipulated in the Legal Agreement. The general description of various items under different expenditure categories is described below. For each contract to be financed by the Grant, the different procurement methods or consultant selection methods, the need for prequalification, estimated costs, prior review requirements, and timeframe are agreed between the Grant Recipient and the Bank project team in the Procurement Plan. The Procurement Plan will be updated at least annually or as required to reflect the actual project implementation needs and improvements in institutional capacity.

***Procurement of Works:*** Works procured under this project will include rehabilitation of sewage pre-treatment and treatment plants for a total estimate of US\$17.11 million equivalent. Major contracts for these works will be procured following International Competitive Bidding procedures (ICB), using Bank-issued Standard Bidding Documents (SBDs). Contracts estimated to cost less than US\$0.5 million equivalent per contract may be procured using National Competitive Bidding (NCB) procedures and standard bidding documents agreed in advance with the Bank. Minor works estimated to cost less than US\$0.1 million equivalent per contract may be procured under shopping procedures and lump-sum, fixed-price contracts awarded on the basis of quotations obtained from at least three (3) qualified domestic contractors in response to a written invitation. The invitation shall include a detailed description of the works, including basic specifications, the required completion date, a basic form of agreement acceptable to the Bank, and relevant drawings, where applicable. The award shall be made to the contractor who offers the lowest price quotation for the required work, and who has the experience and resources to complete the contract successfully. In case of direct invitation (not publicly advertised) the list of firms to be invited should be determined by a committee or commission.

***Procurement of Goods:*** Goods procured under this project would include IT equipment (HW and SW) and vehicles for the PMT and PITs estimated to cost a total of US\$0.31 million equivalent, included in the project operating cost. Contracts for goods estimated to cost less than US\$100,000 per contract may be procured using shopping procedures based on a model request for quotations satisfactory to the Bank. In case of direct invitation (not publicly advertised) the list of firms to be invited should be determined by a committee or commission.

Direct contracting of Works and Goods will be allowed only with the previous approval of the Bank and only under the circumstances described in Paragraph 3.6 of the Procurement Guidelines.

***Selection of Consultants:*** Consulting services will be contracted under this project in the following areas of expertise: data collection, design and supervision of works, natural wastewater treatment project preparation, and project audits. The total of these services are estimated to cost US\$2.96 million equivalent and would be procured using Bank Standard Request for Proposals.

### Firms

All contracts with firms estimated to cost US\$100,000 equivalent or more would be procured using QCBS except for small and simple contracts estimated to cost less than US\$100,000 equivalent, which should be procured using CQ or LCS.

Single-source selection of firms would be allowed only with the previous approval of the Bank and under the exceptional cases described in Paragraphs 3.9 through 3.13 of the Consultant Guidelines.

Short-lists of consultants for services estimated to cost less than \$100,000 equivalent per contract may be composed entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines.

### Individuals

Specialized advisory services would be provided by individual consultants selected by comparison of qualifications of three candidates and hired in accordance with the provisions of paragraphs 5.1 through 5.3 of the Consultant Guidelines. In case of direct invitation (not publicly advertised) the list of individuals to be invited to submit CVs should be determined by a committee or commission.

Sole-source selection of individual consultants would be allowed only with the previous approval of the Bank and under the exceptional cases described in Paragraph 5.4 of the Consultant Guidelines.

**Operating Cost:** Expenditures for management/monitoring of action plans, operating cost of the PMT and PITs and project audits in the total amount of US\$0.20 (excluding US\$0.11 million for goods) million equivalent would be incurred using the PMT administrative procedures reviewed by and found acceptable to the Bank. The audit firm is to be selected in a centralized way by the Ministry of Finance, still following selection procedures satisfactory to the Bank.

## **B. Assessment of the Agency's capacity to implement procurement**

Procurement activities will be carried out by the PMT which is integrated into the Ministry of Agriculture, Water Management and Forestry of BH. The Procurement unit is staffed by one procurement officer. At the utility level, the Project Implementing Teams are staffed each by a Technical (Procurement) and FM experts.

The risks identified in the assessment include: (i) inexperienced procurement staff in procurement process; (ii) administrative interference in procurement process; (iii) the complex country procurement environment. The PMT has presented a detailed plan to address these risks. It involves: (i) training for staff directly involved in procurement, particularly procurement staff in PMT and PIT; ii) dissemination of Bank's procurement practices to administrative staff related to the Project; (iii) observing and promoting anticorruption safeguards in Bank-financed projects' procurement, particularly the transparency provisions of the Bank's Guidelines.

The PMT will pay particular attention to the composition of the evaluation committees (for goods and works) and evaluation commission (for consultants). Evaluation committees should be integrated by highly qualified technical experts. The CVs of the members of the committees and commissions will be submitted to the Bank for no-objection.

The overall project risk for procurement is HIGH.

## **C. Procurement Plan**

The Recipient, at appraisal, developed a Procurement Plan for project implementation, which provides the basis for the procurement methods. This plan has been agreed between the Recipient and the Project Team on March 11, 2005 and is available at the PMT office. It will also be available in the Project's database and in the Bank's external website. The Procurement Plan will be updated in agreement with the Project Team annually or as required to reflect the actual project implementation needs and improvements in institutional capacity.

## **D. Frequency of Procurement Supervision**

In addition to the prior review, the capacity assessment of the PMT has recommended supervision missions to visit the field to carry out post review of procurement actions every six months. Based on the overall risk assessment (HIGH) the post-review field analysis should cover a sample of not less than 1 in 5 contracts signed.



## 1. Attachment 1: Details of procurement arrangements involving International Competition

### 1. Goods and Works and non-consulting services.

(a) List of contract Packages that will be procured following ICB and Direct Contracting (US\$):

Ref. No.	Contract (Description)	Estimated Cost	Procurement Method	P-Q	Domestic Preference (yes/no)	Review by Bank (Prior/Post)	Expected Bid-Opening Date	Comments
1	Mostar Main sewage collectors for central town area	6,900,000	ICB	NA	No	Prior	Oct 2005	Works
2	Mostar Effluent Treatment Unit	2,700,000	ICB	NA	No	Prior	Sep 2006	Works
3	Zivinice Infrastructure, including overflows	1,700,000	ICB	NA	No	Prior	Oct 2005	Works
4	Trnovo Rehabilitation of Sewage Treatment Plant	500,000	ICB	NA	No	Prior	Oct 2005	Works
5	Odzak Outfall pipeline for treated effluent	600,000	ICB	NA	No	Prior	Oct 2005	Works

(b) ICB Contracts estimated to cost US\$ 500,000 or above for Works and US\$ 100,000 or above, for goods, per contract, and all Direct contracting will be subject to prior review by the Bank.

## 2. Consulting Services.

(a) List of Consulting Assignments with short-list of international firms.

Ref. No.	Description of Assignment	Estimated Cost	Selection Method	Review by Bank (Prior / Post)	Expected Proposals Submission Date	Comments
1	Data Collection/Preparation	250,000	QCBS	Prior	Nov 2005	Bosnia River, Component A
2	Data Collection/Preparation	250,000	QCBS	Prior	Nov 2005	Neretva River, Component A
3	Data review and preparation of final plan and monitoring program	250,000	QCBS	Prior	Aug 2006	Bosnia River, Component A
4	Data review and preparation of final plan and monitoring program	250,000	QCBS	Prior	August 2006	Neretva River, Component A
5	Mostar Design of Works	600,000	QCBS	Prior	Nov 2005	
6	Mostar Supervision of Works	200,000	QCBS	Prior	May 2006	
7	Zivinice Design of Works	130,000	QCBS	Prior	Nov 2005	
8	Odzak Design of Works	120,000	QCBS	Prior	Nov 2005	
9	Natural Wastewater Treatment Project Preparation	100,000	QCBS	Prior	Nov 2005	

(b) Consultancy services estimated to cost US\$ 100,000 or above per contract and Single Source selection of consultants (firms) will be subject to prior review by the Bank.

## **Annex 9: Economic and Financial Analysis**

### **BOSNIA AND HERZEGOVINA: WATER QUALITY PROTECTION**

Economic cost/benefit analysis is difficult to apply to environmental projects such as the proposed water quality protection project because there is no market for the output of the project. As a consequence, it is difficult to measure benefits reliably. The water quality protection project will primarily benefit those who live downstream from the primary sources of pollution that the project will mitigate. Many of the benefits are of such a nature that their monetary valuation is tenuous since the preservation and restoration of an ecological balance entails intangible benefits, for the present and future generations.

Given the impracticality of assigning a monetary value to the benefits from the project the economic analysis has been restricted to ensuring that the expected benefits are produced at the least cost to the economy. This analysis comprises a number of steps:

- The demand for the collection of wastewater, for its treatment, and for its safe return to the environment is carefully projected. The projections must ensure that water consumption patterns are reasonably efficient. In the case of Mostar this is clearly true since the wastewater investments follow the Mostar water supply and sanitation project where a primary objective was to build the institutional capacity to reduce wastage and promote economic and financial efficiency. In the survey that the Mostar vodovod conducted at the project conclusion a substantial share of the respondents stressed that they wished more resources be invested in wastewater treatment, proving the value that the population assigns to the proposed project ;
- Different technical alternatives are then analyzed to find the cheapest way of collecting, treating and safely disposing of the wastewater from the project towns. In particular, the project attempts to minimize the costs of treating wastewater by limiting the treatment capacity to the first stage for the Mostar sub-project, for upgrading the existing Zivinice wastewater treatment plant; for rehabilitating the existing treatment plants in Trnovo and Odzak, and for considering the introduction of low-cost treatment in lagoons in Odzak. The experience proves that optimizing already existing capacity is the least cost solution;
- Each of the technical alternatives is then costed, using economic prices. Such calculations should exclude non-economic costs such as taxes, subsidies and other transfer payments. The cost comparisons should be done in constant prices that exclude the effect of general price inflation;
- The annual costs in economic terms of each alternative are then made comparable by discounting them by the opportunity cost of capital, producing a present-value sum of the economic costs;
- The alternative with the lowest present value sum is then selected.

Additionally, an environmental cost effectiveness analysis is possible on the basis of the monitoring indicators such as the annual reduction of nutrient discharges of nitrogen and phosphorus, the average operating cost of the process to reduce nutrients, the annual reduction of BOD discharges, and the average operating cost of the BOD reduction. The project objective of exploring the possibility of low cost lagoon treatment in Odzak is particularly relevant because of the potential for lowering operating costs, and in particular energy costs. Similarly, the component to prepare for natural wastewater treatment in the lower Neretva River and in the lower part of the Bosna River is relevant in the drive towards reducing annual operating costs in the treatment processes.

### **Financial analysis**

A cash flow analysis will be made of each utility and sub-project during the implementation period and during the first few years of operation to ensure adequate funding of operations and maintenance expenditure. The cash flow forecasts are central to avoid undue delays in project commissioning because of insufficient funding of investments and to increase the likelihood that the project facilities will be operated and maintained in a fashion that will guarantee sustainable levels of benefits.

## **Annex 10: Safeguard Policy Issues**

### **BOSNIA AND HERZEGOVINA: WATER QUALITY PROTECTION**

#### **Environmental Assessment:**

Environmental Assessments (EAs) have been prepared for the high-priority, low-cost investments under Part B of the Project. Included in the EAs are Environmental Management Plans (EMPs) covering the details of the specific mitigation and monitoring measures of the sub-projects identified prior to appraisal. Mitigation would include social as well as physical impacts on the environment. The EA was submitted to the World Bank on December 31, 2004 and has been reviewed and approved by the ECA Regional Environmental Unit. Disclosure of the EA took place in-country and the EA is also available through the Infoshop.

An Environmental Policy Framework (EPF, serving as “Environmental Guidelines”) for chance finds and investments to be identified after the project starts has also been prepared and reviewed by the World Bank ECA Regional Environmental Unit. The EPF will be attached as an annex to the Operational Manual. It provides (i) an overview of Bank policies compared to country regulations/legislation and procedures for environmental screening, impact assessment and monitoring, (ii) indicates the manner in which these would be resolved, and (iii) details institutional responsibilities and procedures.

The EA for each site, including an Environmental Management Plan (EMP), has been submitted to the Bank, and publicly disclosed in-country, and is available to the public through the World Bank INFO Shop. The EMP includes: (i) mitigation plan, (ii) monitoring plan, (iii) implementation schedule, (iv) institutional arrangements for effective environmental management, and dates and minutes of the public consultation undertaken during the preparation of the EA/EMP.

#### **Natural Habitats:**

The project includes a component specifically targeting natural wastewater treatment pilot. The project would assist the identification of a suitable pilot area for the application and testing of conservation proposals. Compliance with natural habitats protection policies is specified in the EA and EFP.

#### **Pest Management:**

*Not Applicable.*

#### **Involuntary Resettlement:**

The specific project sites and investments determined during preparation involved neither involuntary resettlement nor land acquisition, and such was not envisioned for the wet lands pilot. In order to address even the unlikely possibility of land acquisition guidelines on land acquisition are provided in the EA/EFP discussed above. The EFP describes standard procedures in the country when private land is expropriated for public use and spells out steps that must be

taken to ensure compliance with the Operational Policy of the Bank (particularly compensation at full replacement value, compensation for impact on income, and the right of appeal). Should investment related to the investment provided by this project be considered under funding from other sources, the processes identified in the EFP would need to be carried out.

**Indigenous People:**

*Not Applicable.*

**Forests:**

*Not Applicable.*

**Safety of Dams:**

*Not Applicable.*

**Cultural Property:**

The project would not involve any physical activities at or near known sites of cultural/historical/religious etc. significance. Nonetheless, during routine activities artifacts that are significant from a cultural heritage viewpoint may be found. For this possibility, chance find procedures have been specified in the EFP and in the respective EMPs for each site (See "Environmental Assessment" above).

**Projects in Disputed Areas:**

*Not Applicable.*

**Projects on International Waterways:**

OP 7.50 applies to any water project that involves "the use or potential pollution of international waterways." It specifically exempts from the notification requirement "minor additions or alterations" to existing schemes that "will not adversely change the quality or quantity of water flows to the other riparians." Since by design the project seeks to improve the water quality of four rivers in the region, it meets this definition. Reduced downstream flow of pollutants into the Adriatic would have positive regional/global implications.

On this basis, an exemption to the notification of riparians was requested and granted by the Office of the ECA Vice President.

**Annex 11: Project Preparation and Supervision**  
**BOSNIA AND HERZEGOVINA: WATER QUALITY PROTECTION**

	Planned	Actual
PCN review	12/11/2003	12/11/2003
Initial PID to PIC		01/05/2004
Initial ISDS to PIC		03/12/2004
Appraisal	10/27/2004	02/29/2005
Negotiations	11/15/2004	03/15/2005
Board/RVP approval	02/01/2005	05/31/2005
Planned date of effectiveness	09/30/2005	09/30/2005
Planned date of mid-term review	05/01/2007	TBD
Planned closing date	08/30/2010	TBD

Key institutions responsible for preparation of the project:

- Federation Ministry of Agriculture, Water Management and Forestry (MAWMF)
- Public Water Management Enterprise
- Ministries of Environment and Urban Planning

Bank staff and consultants who worked on the project included:

- Allan Rotman (MNSRE); Daniel Hoornweg (LCSFW); and Art Bruestle (Consultant) as Peer Reviewers

Name	Title	Unit
Seema Manghee	Task Team Leader	ECSIE
Takao Ikegami	Technical Specialist	ECSIE
Vesna Francic	Operations Officer	ECSIE
Karl Kleiner	Technical Specialist	ECSIE
Phillip Moeller	Social Specialist	ECSIE
Alexandre Danilenko	Environmental Specialist	ECSIE
Bernard Baratz	Environmental Specialist	ECSSD
Jesus Renzoli	Senior Procurement Specialist	ECSPS
Mark Walker	Lead Counsel	LEGEC
Sanjay Vani	Senior Financial Management Specialist	ECSPS
Delphine A. Hamilton	Senior Program Assistant	ECSIE
Edward Daoud	Senior Finance Officer	LOAG1
Joseph Foote	Consultant	ECSIE

Bank funds expended to date on project preparation:

1. Bank resources: US\$142,808.14
2. Trust funds: US\$0.00
3. Total: US\$142,808.14

Estimated Approval and Supervision costs:

1. Remaining costs to approval:
2. Estimated annual supervision cost:

**Annex 12: Documents in the Project File**  
**BOSNIA AND HERZEGOVINA: WATER QUALITY PROTECTION**

**Commercial/financial**

Business Plans for Utilities in the project (underway)

**Social Assessment**

Mostar Pilot Cultural Heritage Project, Bosnia and Herzegovina: Social Assessment. PRISM Research, Sarajevo, December 1998.

Dani, Anis et. al. A Social Assessment of Bosnia and Herzegovina. The World Bank, April 1999.

World Bank. Bosnia and Herzegovina: Poverty Assessment, Concept Note. World Bank, Washington, DC. January 21, 2001

World Bank. Bosnia and Herzegovina Poverty Profile: PRSP, World Bank, Washington, DC, May 14, 2002

Vodovod D.O.O. Mostar. Survey results of Customers Opinion on Services Given from Vodovod D.O.O. Mostar, Mostar, 2004.

Environmental Infrastructure Protection Project: Social Assessment: March 15, 2002.

Social Assessment: Urban Infrastructure Needs and Priorities, PRISM Research, Sarajevo, April 19, 2004

World Bank. Bosnia and Herzegovina: Local Level Institutions and Social capital Study, Prepared by PRISM Research for the World Bank, ECSSD, Sarajevo, June 2002.

**Safeguards: Environmental Assessment**

Bosnia and Herzegovina Water Quality Protection Project: Environmental Assessment. [Final Draft] Bosna-S Oil Services Company, Sarajevo, December 2004.

Bosnia and Herzegovina Water Quality Protection Project: Environmental Assessment, Preliminary Summary. [Final Draft] Bosna-S Oil Services Company, Sarajevo, December 2004.

Bosnia and Herzegovina Water Quality Protection Project: Environmental Framework Policy. [Final Draft] Bosna-S Oil Services Company, Sarajevo, December 2004.

Bosnia and Herzegovina Water Quality Protection Project: Environmental Framework Policy, Summary. [Final Draft] Bosna-S Oil Services Company, Sarajevo, December 2004.



**Other Technical Documents**

Harza Consultants - Technical Study for the Neretva River

PCWM. Findings for Bosna River.

European Union. Bosnia and Herzegovina: Water Sector Strengthening Study

**Annex 13: Statement of Loans and Credits**  
**BOSNIA AND HERZEGOVINA: WATER QUALITY PROTECTION**

Project ID	FY	Purpose	Original Amount in US\$ Millions				Cancel.	Undisb.	Difference between expected and actual disbursements	
			IBRD	IDA	SF	GEF			Orig.	Frm. Rev'd
P071004	2003	SOC INS TA	0.00	7.00	0.00	0.00	0.00	6.81	-0.38	0.00
P055434	2003	SM SC COM AGRIC	0.00	12.00	0.00	0.00	0.00	12.04	-0.72	0.00
P079161	2003	FOREST DEVT/CNSRV TA	0.00	3.75	0.00	0.00	0.00	3.82	-0.30	0.00
P070243	2002	PRIVATE SECTOR CREDIT PROJECT	0.00	10.00	0.00	0.00	0.00	6.00	0.05	0.00
P071001	2002	BUS ENABL ENV SAC	0.00	44.00	0.00	0.00	0.00	29.63	-20.02	0.00
P057950	2002	SOLID WASTE MGMT	0.00	18.00	0.00	0.00	0.00	20.40	-0.65	0.00
P071347	2002	ROAD MGMT SAFETY	0.00	30.00	0.00	0.00	0.00	29.27	0.52	0.00
P070650	2001	SOTAC	0.00	3.55	0.00	0.00	0.00	2.62	2.13	0.34
P070917	2001	PRIV TA	0.00	19.80	0.00	0.00	0.00	21.46	13.71	0.00
P070995	2001	COMM DEVT	0.00	15.00	0.00	0.00	0.00	12.77	10.46	0.00
P058521	2001	ELEC PWR 3 REC N	0.00	35.00	0.00	0.00	0.00	35.05	22.82	0.00
P066169	2001	LOC INIT 2	0.00	20.00	0.00	0.00	0.00	9.58	12.23	2.04
P070079	2001	TRADE & TRANS FACIL IN SE EUR	0.00	11.00	0.00	0.00	0.00	4.09	5.71	0.00
P057951	2000	MOSTAR WS & SAN	0.00	12.00	0.00	0.00	0.00	5.61	-1.81	0.00
P058512	2000	EDUC 3	0.00	10.60	0.00	0.00	0.00	4.17	1.06	0.00
P070146	2000	EMG LABOR REDEPLOYMENT PILOT	0.00	15.00	0.00	0.00	0.00	5.87	9.42	-1.87
P059763	1999	CULTL HERITAGE PILOT	0.00	4.00	0.00	0.00	0.00	1.90	1.77	0.04
P056192	1999	LOCAL DEVT	0.00	15.00	0.00	0.00	0.00	11.32	10.14	-0.43
P044523	1999	BASIC HEALTH	0.00	10.00	0.00	0.00	0.00	0.81	0.80	0.00
Total:			0.00	295.70	0.00	0.00	0.00	223.22	66.94	0.12

**BOSNIA AND HERZEGOVINA**  
**STATEMENT OF IFC's**  
**Held and Disbursed Portfolio**  
**In Millions of US Dollars**

FY Approval	Company	Committed				Disbursed			
		IFC				IFC			
		Loan	Equity	Quasi	Partic.	Loan	Equity	Quasi	Partic.
1997/99/01/02	Bosnia Micro	3.44	0.00	0.00	0.00	3.44	0.00	0.00	0.00
2001	CPB	0.00	0.00	3.56	0.00	0.00	0.00	3.56	0.00
1985	Energoinvest	9.05	0.00	0.00	0.00	9.05	0.00	0.00	0.00
1997	Enterprise Fund	0.00	1.89	0.00	0.00	0.00	1.06	0.00	0.00
2002	FCL	11.47	0.00	0.00	2.87	11.47	0.00	0.00	2.87
	PBS-SPV	2.43	0.00	0.00	0.00	2.43	0.00	0.00	0.00
2001									
2002	Raiffeisen-BOS	8.43	0.00	0.00	0.00	6.71	0.00	0.00	0.00
1998	SEF Akova	1.30	0.00	0.00	0.00	1.30	0.00	0.00	0.00
1999/01	SEF Bosnalijek	1.81	0.00	0.00	0.00	1.81	0.00	0.00	0.00

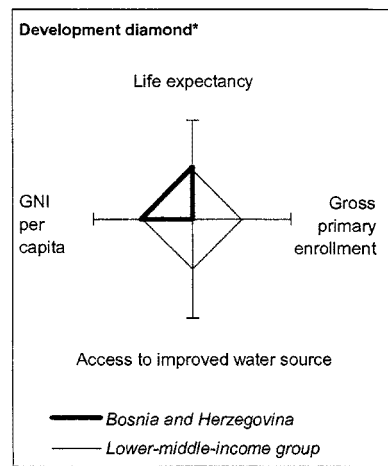
1998	SEF Lignosper	2.43	0.00	0.00	0.00	2.11	0.00	0.00	0.00
1999	SEF Lijanovici	1.45	0.00	0.00	0.00	1.45	0.00	0.00	0.00
1997	Sarajevska	1.14	0.00	0.00	0.00	1.14	0.00	0.00	0.00
1977	TKA Cazin	3.91	0.00	0.00	0.00	3.91	0.00	0.00	0.00
1998	Wood Agency-AL	5.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0	Wood Inga	1.85	0.00	0.00	0.00	0.37	0.00	0.00	0.00
0	Wood Konjuh	2.63	0.00	0.00	0.00	2.33	0.00	0.00	0.00
0	Wood Kozara	1.85	0.00	0.00	0.00	1.55	0.00	0.00	0.00
0	Wood Podgradci	1.27	0.00	0.00	0.00	1.03	0.00	0.00	0.00
0	Wood Vrbas	1.85	0.00	0.00	0.00	0.37	0.00	0.00	0.00
Total portfolio:		61.55	1.89	3.56	2.87	50.47	1.06	3.56	2.87

FY Approval	Company	Approvals Pending Commitment			
		Loan	Equity	Quasi	Partic.
2002	Lukavac	0.01	0.00	0.00	0.00
2002	Raiffeisen Bank	0.01	0.00	0.00	0.00
Total pending commitment:		0.02	0.00	0.00	0.00

## Annex 14: Country at a Glance

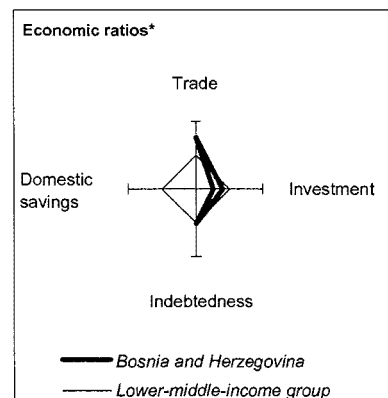
### BOSNIA AND HERZEGOVINA: WATER QUALITY PROTECTION

POVERTY and SOCIAL	Bosnia and Herzegovina	Europe & Central Asia	Lower-middle-income
<b>2003</b>			
Population, mid-year ( <i>millions</i> )	4.1	473	2,655
GNI per capita ( <i>Atlas method, US\$</i> )	1,540	2,570	1,480
GNI ( <i>Atlas method, US\$ billions</i> )	6.4	1,217	3,934
<b>Average annual growth, 1997-03</b>			
Population (%)	2.1	0.0	0.9
Labor force (%)	2.3	0.2	1.2
<b>Most recent estimate (latest year available, 1997-03)</b>			
Poverty (% of population below national poverty line)	20	..	..
Urban population (% of total population)	44	63	50
Life expectancy at birth ( <i>years</i> )	74	69	69
Infant mortality ( <i>per 1,000 live births</i> )	15	31	32
Child malnutrition (% of children under 5)	4	..	11
Access to an improved water source (% of population)	..	91	81
Illiteracy (% of population age 15+)	5	3	10
Gross primary enrollment (% of school-age population)	..	103	112
Male	..	104	113
Female	..	102	111



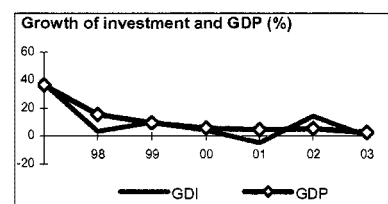
#### KEY ECONOMIC RATIOS and LONG-TERM TRENDS

	1983	1993	2002	2003
GDP ( <i>US\$ billions</i> )	..	..	5.6	7.0
Gross domestic investment/GDP	..	..	19.6	19.9
Exports of goods and services/GDP	..	..	24.5	25.2
Gross domestic savings/GDP	..	..	-17.1	-14.0
Gross national savings/GDP	..	..	-2.5	0.9
Current account balance/GDP	..	..	-22.2	-19.0
Interest payments/GDP	..	..	1.0	0.8
Total debt/GDP	..	..	45.8	41.3
Total debt service/exports	..	..	7.1	7.1
Present value of debt/GDP	..	..	29.2	23.8
Present value of debt/exports	..	..	120.8	109.3
	<b>1983-93</b>	<b>1993-03</b>	<b>2002</b>	<b>2003</b>
( <i>average annual growth</i> )				
GDP	..	17.8	5.5	2.7
GDP per capita	..	15.4	4.4	2.4
Exports of goods and services	..	23.6	5.3	10.4



#### STRUCTURE of the ECONOMY

	1983	1993	2002	2003
(% of GDP)				
Agriculture	..	..	14.9	14.9
Industry	..	..	32.1	31.9
Manufacturing	..	..	15.2	15.1
Services	..	..	52.9	52.8
Private consumption	..	..	92.3	91.8
General government consumption	..	..	24.8	22.3
Imports of goods and services	..	..	61.2	59.2
	<b>1983-93</b>	<b>1993-03</b>	<b>2002</b>	<b>2003</b>
( <i>average annual growth</i> )				
Agriculture	..	..	..	2.5
Industry	..	..	..	2.5
Manufacturing	..	..	..	2.5
Services	..	..	..	2.2
Private consumption	..	..	..	..
General government consumption	..	..	..	..
Gross domestic investment	..	35.6	..	..
Imports of goods and services	..	11.1	17.9	20.2



# PRICES and GOVERNMENT FINANCE

## Domestic prices

(% change)

Consumer prices

Implicit GDP deflator

## Government finance

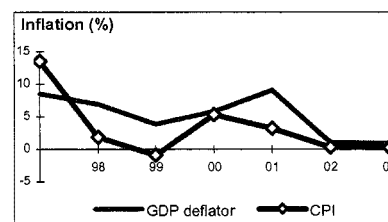
(% of GDP, includes current grants)

Current revenue

Current budget balance

Overall surplus/deficit

	1983	1993	2002	2003
Consumer prices	..	..	0.3	0.2
Implicit GDP deflator	..	..	1.0	0.9
Current revenue	..	..	50.7	49.3
Current budget balance	..	..	6.5	6.5
Overall surplus/deficit	..	..	-2.5	0.3



# TRADE

(US\$ millions)

Total exports (fob)

n.a.

n.a.

Manufactures

Total imports (cif)

Food

Fuel and energy

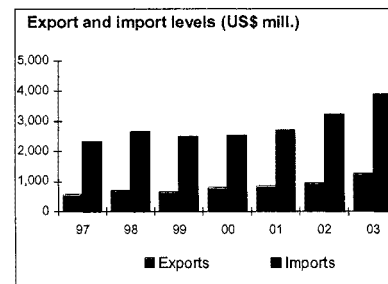
Capital goods

Export price index (1995=100)

Import price index (1995=100)

Terms of trade (1995=100)

	1983	1993	2002	2003
Total exports (fob)	..	..	952	1,272
n.a.	..	..	..	..
n.a.	..	..	..	..
Manufactures	..	..	..	..
Total imports (cif)	..	..	3,233	3,890
Food	..	..	..	..
Fuel and energy	..	..	..	..
Capital goods	..	..	..	..
Export price index (1995=100)	..	..	..	..
Import price index (1995=100)	..	..	..	..
Terms of trade (1995=100)	..	..	..	..



# BALANCE of PAYMENTS

(US\$ millions)

Exports of goods and services

Imports of goods and services

Resource balance

Net income

Net current transfers

Current account balance

Financing items (net)

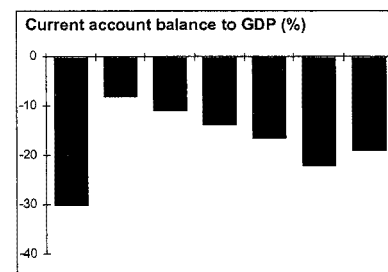
Changes in net reserves

## Memo:

Reserves including gold (US\$ millions)

Conversion rate (DEC, local/US\$)

	1983	1993	2002	2003
Exports of goods and services	..	..	1,374	1,759
Imports of goods and services	..	..	3,428	4,121
Resource balance	..	..	-2,054	-2,362
Net income	..	..	248	327
Net current transfers	..	..	565	711
Current account balance	..	..	-1,241	-1,325
Financing items (net)	..	..	1,282	1,806
Changes in net reserves	..	..	-41	-481
Reserves including gold (US\$ millions)	..	..	0	1,785
Conversion rate (DEC, local/US\$)	..	..	2.1	1.7



# EXTERNAL DEBT and RESOURCE FLOWS

(US\$ millions)

Total debt outstanding and disbursed

IBRD

IDA

Total debt service

IBRD

IDA

Composition of net resource flows

Official grants

Official creditors

Private creditors

Foreign direct investment

Portfolio equity

World Bank program

Commitments

Disbursements

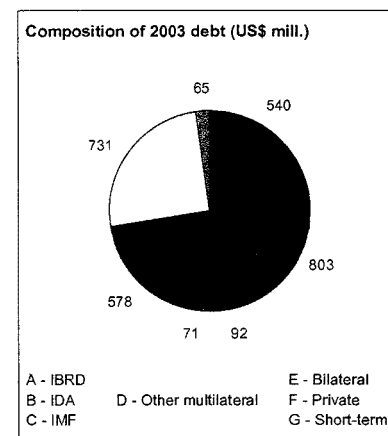
Principal repayments

Net flows

Interest payments

Net transfers

	1983	1993	2002	2003
Total debt outstanding and disbursed	..	..	2,563	2,880
IBRD	..	424	538	540
IDA	..	0	726	803
Total debt service	..	..	125	151
IBRD	..	0	45	43
IDA	..	0	5	6
Composition of net resource flows	..	..	..	..
Official grants	..	32	..	..
Official creditors	..	..	..	..
Private creditors	..	..	..	..
Foreign direct investment	..	..	..	..
Portfolio equity	..	..	..	..
World Bank program	..	..	..	..
Commitments	..	0	102	23
Disbursements	..	0	97	35
Principal repayments	..	0	23	23
Net flows	..	0	74	12
Interest payments	..	0	26	23
Net transfers	..	0	48	-11



## **Annex 15: Incremental Cost Analysis**

### **BOSNIA AND HERZEGOVINA: WATER QUALITY PROTECTION**

#### **Annex A: Incremental Cost Analysis**

##### *Broad Sectoral Development Goals and the Baseline*

1. Under its National Environmental Action Plan (NEAP) prepared in March 2003, the basic sectoral goals that the Government intends to achieve by 2020 are: (i) provision of sufficient quantities of high-quality water for water supply and other needs; (ii) protection of water resources and preservation of surface and ground water quality; and (iii) protection from flooding. Among the principal problems to be addressed are lack of treatment of municipal and industrial wastewaters, existence of numerous wild dumpsites, many close to water sources and watercourses; and lack of application of preventive measures. The Country Assistance Strategy (CAS) Progress Report stresses the important environmental issues existing at the local level, and the Poverty Reduction Strategy Paper (PRSP) for BiH places high priority on the need to address the rapid environmental degradation. BiH is also seeking to promote cooperation with surrounding countries in managing transboundary water resources.

2. BiH is a member of the International Commission of Protection of the Danube River (ICPDR) and the Danube-Black Sea Program (Dablas) as a full member of the Danube and Black Sea Conventions. In July 1996, BiH and Croatia signed an agreement to establish a framework for water management. Both countries support the Barcelona Mediterranean Convention of 1976 for the prevention of pollution of the Mediterranean, and have signed and ratified all its protocols.

3. Status of the sector: The substantial water resources of BiH provide an important economic potential, but important issues need to be addressed. Insufficient attention has been paid in the past to protection of water. This has been exacerbated by infrastructure damage caused by war activities during 1990-1995, and inadequate repair and maintenance due to the difficult financial situation of the water and wastewater utilities. Around 56% of the urban population is connected to sewerage systems. For smaller settlements, the proportion is around 10%. Maintenance is often inadequate, and the governing regulations and legislation are still not complete. Overflow from the systems occurs in the rainy season and affect 65% of the municipal centers. The problems lie not only with failure to complete the systems as originally planned but also to rectify war damage. Few wastewater treatment plants exist. Only seven cities with a population in excess of 5,000 inhabitants had treatment systems before the war. Two plants, in Sarajevo and Trnovo, are still not functioning in full capacity due to war damage. In addition, at one point there were about 120 plants for treatment of industrial wastewater. Very few are in use after the decline of industry following the war. Most wastewater (almost 90%) is released directly without treatment into the nearest rivers, streams and underground channels. Pollution of water by wild dumpsites close to water sources and watercourses has been identified as a significant problem needing attention. Major constraints to achieving a rapid improvement in the sector are institutional weaknesses, and the difficult financial state of the utilities due to low tariffs and low collections. Nutrient reduction was rarely addressed by state.

4. Baseline: In the above sectoral context, the Government's priority, within its financial constraints, has been to restore water supply to as high a proportion of the affected population as possible. The Bank has supported this through a number of operations including the immediate post-war Urgent Works Project, approved in 1996, and the Mostar Water Supply & Sanitation Project, approved in June 2000. The Bank also financed a Solid Waste Project, approved in 2002, which would help reduce the threat of pollution of potable water sources, and an Urban Infrastructure and Service Delivery Project (approved in 2004). These operations have been supplemented by a number of donor-financed projects, aimed principally at water supply restoration, and improvement in sewerage networks.

5. While environmental issues of local as well as transboundary impact are high on the Government's list, in the overall situation of its financial constraints, the Government will need to give priority to those impacting the local population. The scope of the other investments and the speed with which they are addressed will depend upon the amount of external financing that the Government will be able to secure. The Baseline therefore includes the Government's program in continuing to improve the water supply situation and sewerage networks, particularly where they pose significant health risks for the population.

*Global Environmental Objective and GEF Alternative*

The global objective is to reduce municipal pollution and nutrients in the Adriatic Sea and the Danube Basin.

6. Under the Baseline discussed above, the Government is unlikely to be able to allocate financial resources to address the growing pollution effects of uncontrolled and increased urban wastewater discharge which will have negative transboundary and global environmental consequences including:

- endangered marine ecosystems and habitats
- endangered coastal ecosystems
- risks and adverse impacts on biodiversity
- development of algae populations
- declining of marshlands of the global importance

7. GEF Alternative: To minimize the pollution and consequent eutrophication of the wetlands and marine areas, the alternative proposed includes investments that will significantly reduce the nutrient loads of the wastewater discharged into the Neretva and Bosna rivers. Availability of a significant GEF contribution will help leverage the financing by encouraging other donors to make substantial contributions to project financing. It is unlikely that these donor contributions will materialize in the absence of the GEF grant to support the project. The Government contribution to the project is expected of US\$ 6.19 million. Out of the total project investment of US\$ 20.27 million, an amount of about US\$ 11.37 million will therefore be additional to the proposed project (See Table 3). The investments proposed are the following:

- A. Reduction of river pollution in BiH
  - B. High priority investments in Mostar (Mediterranean Basin), Zivinice, Trnovo and Odzak (Black Sea Basin)
  - C. Natural Wastewater Treatment Pilot
  - D. Project management
  - E. Replication, Information Sharing and Implementation
8. The GEF grant will be applied to the following investments/activities which would not have been financed in the absence of the grant:
- A. Reduction of river pollution in BiH (\$0.45 million- 100% will be covered by the GEF). This will be equally split between two river basins in order to capture entire BiH territory.
  - B. High priority investments in Mostar, Zivinice, Trnovo and Odzak (GEF will cover \$6.44 million of the total investment in these cities). Investments will cover wastewater improvements in both Neretva and Bosna river basins.
  - C. Natural Wastewater Treatment Pilot (\$1.48 million and GEF will cover 1.28 million or about 85%)
  - D. Project management (\$0.3 million- replication element or 50% of this component)
9. The project investments are expected to result in the following reductions in nutrient and BOD loads:

**Table 1. Quality of wastewater discharged into BiH surface waters (after project intervention)**

Main parameter	Assumed sewage inlet concentration (mg/l)	Expected median of RE (%)	Expected median of outlet concentration (mg/l)
BOD	200-250	70%	60-75
N-total	50-60	25%	30-40
P-total	20-27	20%	15-20

10. Additionality: The measures under the proposed GEF alternative are additional to the Baseline. These additional actions will complement existing and planned activities. Specifically the additional activities are designed to improve international waters quality and reduction of pollution from municipal sources, wildlife management of the wetlands, restore precious habitats, and secure long-term biodiversity protection of both marine and marshland areas. Incorporation of these components into the proposed alternative will ensure the conservation of globally unique biodiversity by integrating biodiversity protection to the improvement of quality of life.



*Reduction in health costs (local benefit):* The poor water quality has an impact on health conditions in the local population. Reduction of sewerage discharges and resulting improvement of water quality will have a positive health impact, although the magnitude of these benefits may not be very large since the water from the river is not generally used for direct consumption. This is because in ‘normal’ circumstances, most individuals may treat water before drinking it, if they consider it to be harmful. However, the benefits of reduced treatment cost or aversive expenditure (i.e. purchase of water filter, bottled water, etc.) may be indeed quite large, which should be included in the people’s willingness-to-pay (WTP) for the higher quality water.

*Downstream population benefits.* Improved water quality is expected to generate significant public benefits for the downstream municipalities and smaller communities.

11. Expected outputs and global benefits: These are the following:

- reduction in sewage pollution load, and prevention of pollution of bays and surrounding coastal areas with BOD and nutrients
- protection of endangered marshland and marine biodiversity
- restoration of marshlands currently polluted by untreated sewage and prevention of a reduction in biodiversity in the marshlands

Cost and Financing Plan

A. The total cost of the GEF co-financing of the alternative is estimated at US\$8.9 million detailed as follows:

**Table 2: Cost of the GEF financing of the Alternative (in US\$ 000)**

<b>A. Reduction of river pollution in BiH</b>	.45
<b>B. High priority investments</b>	
Mostar (Neretva River)- Mediterranean Sea Basin	
Effluent treatment unit	2,800
<b>Subtotal for the Mediterranean Basin</b>	2,800
Zivinice (Spreca River)- Black Sea Basin	
Sewage treatment plant upgrade	940
Trnovo (Zeljeznica River)- Black Sea Basin	
Rehabilitation of sewage treatment plant	700
Odzak (Bosna River)- Black Sea Basin	

Rehabilitation of sewage treatment plant	2,000
<b>Subtotal for the Black Sea Basin</b>	<b>3,640</b>
<b>C. Natural Wastewater Treatment</b>	<b>1,280</b>
<b>D. Project implementation and replication</b>	<b>400</b>
<b>Contingencies</b>	<b>330</b>
<b>Total</b>	<b>8,900</b>

12. Financing Plan: The GEF alternative will be financed as follows:

**Table 3: Project financing plan (in US\$ 000)**

<i>Component</i>	<i>GEF</i>	<i>Other donors</i>	<i>GoBiH</i>	<i>Total</i>
A. Reduction of river pollution in BiH	.450			.450
B. High priority investments	5,410	4,540	6,440	16,390
C. Natural Wastewater Treatment	1.28		200	1,480
D. Project management	0	170	140	310
E. Project management	400	240	110	750
Total (without contingencies)	8,570	4,920	5,890	19,380
<b>Total including physical and price contingencies</b>	<b>8,900</b>	<b>5,180</b>	<b>6,190</b>	<b>20,270</b>
In percent	43.9%	25.6%	30.6%	100%

Benefits-Global Environmental Effects

**Table 4. Matrix of global environmental benefits and incremental costs (GEF component)**

<b>Baseline</b>	<b>Alternative</b>	<b>Incremental global environmental benefit</b>
Implementation of two WB projects. Gradual and slow reduction of raw untreated wastewater discharge into rivers;	Improvement in water and wastewater services, including improved management of the water utilities and	Protect and restore endangered coastal and marine habitats; increase of biodiversity; reduction of BOD5

	<b>Baseline</b>	<b>Alternative</b>	<b>Incremental global environmental benefit</b>
	deterioration of local environment also affecting globally important natural habitats	rehabilitation of existing water infrastructure. Improvement in wastewater collection gives large local benefits.	and nutrient emission:
<b>Cost (US\$ million)</b>	<b>15.0</b>	<b>35.17</b>	<b>20.17</b>
Component A. WIP for reduction of river pollution in BiH	No action	Develop pollution cadastre for the BiH surface water polluters	Help to develop affordable pollution prevention action plan and fulfill the BiH international obligations
Component B. High priority investment	Discharge of raw untreated wastewater into rivers; slow rehabilitation of the wastewater treatment facilities; deterioration of local environment also affecting globally important natural habitats	Protect and restore endangered coastal and marine habitats; increase of biodiversity; reduction of BOD5 and nutrient emission: BOD5: 111,000 ton Nitrogen: 7,000 ton Phosphorus: 1,600 ton	Reduction of pollution of the globally important watercourses and seas with nutrients.
Component C. Natural Wastewater Treatment	No action	Testing the fully natural wastewater treatment option for one selected town	Reduction of the nutrient pollution
Component D. Project management and monitoring	No action	Monitoring system in place	Cooperation with international agencies on monitoring
Component E. Project Implementation and replication	No action	Replication seminars and training	Replication of the BiH experience in the region

Cost-Effectiveness

**Table 5. Quantities of substances reduced for years 2005 to 2029 (tons/year)**

Component	Years	Wastewater production on average (m3/year)	Expected reduction of Nitrogen pollution loads (tons/year)	Expected reduction of Phosphorus pollution loads (tons/year)
Mostar	2005-2029	22,641,000	226	36
Odzak	2005-2029	1,783,000	17	4
Trnovo	2005-2029	697,000	6	2
Zivinice	2005-2029	600,000	6	2

**Table 6. Incremental cost for 2005-2029**

<u>Incremental effects</u>	Total	Black Sea Basin	Mediterranean Basin
BOD5 reduction (tons)	111,000	41,000	70,000
Nitrogen reduction (tons)	7,000	1,400	5,600
Total phosphorus reduction (tons)	1,600	600	1,000
<u>Abatement costs</u> <u>GEF</u>			
Abatement costs kg/BOD5	US\$0.10	\$0.20	\$0.07
Abatement costs kg/nutrients	US\$1.1	US\$12.78	US\$0.42
Total annual cost per inhabitant (capital cost + O&M cost)	US\$200	\$200	\$200
GEF investment cost per inhabitant	US\$34	\$27	\$48

## **Annex 16: STAP Roster Review**

### **BOSNIA AND HERZEGOVINA: WATER QUALITY PROTECTION**

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#### **Scientific and technical soundness**

The detail provided on the basis of treatment and the role of wetlands in treatment at the various locations is limited. The scientific and technical basis of reducing the level of sewage pollution contaminants flowing through to environmental waterways is sound. The project is linked with the Bank's Municipal Water and Wastewater Project and addresses the critical issue of reducing nutrient pollution resulting from untreated discharges from the cities of Mostar, Zivinice, Trnovo and Ozdak. It addresses important environmental linkages in relation to national responsibilities in connection with the Danube and Black Sea Conventions and the Barcelona Mediterranean Convention.

The proposal addresses urgent social, human health and economic needs for waste water management with the environmental benefit of halting and reversing decline of wetlands and waterways. If successful it will address an important element of the development/human health and well-being/environment linkage and should contribute to building national awareness of the importance and benefits of addressing environmental issues.

The proposal builds upon a number of sanitation, solid waste and water treatment projects conducted with Bank and other funding support. No direct environmental project linkages are listed but it is consistent with pursuit of implementation and benefits of comparable pollution reduction demonstration projects being undertaken in catchments draining into the Mediterranean, Baltic and Black Seas.

#### **Global environment benefits and costs**

Nutrient pollution of enclosed seas has been identified as an environmental issue of global significance. Major changes in the Adriatic Sea have been attributed to very high levels of eutrophication with impacts on the habitats of endangered species and biological diversity generally. If this project achieves its objectives it will have clear benefits in addressing a significant source of nutrient pollution of the Adriatic Sea from Bosna.

#### **The context of GEF goals and guidelines**

The project clearly addresses the issues of surface water contamination within the context of environmental-poverty linkages. It should bring early benefits through improvements to public health and the living. With adequate attention to information and education it should help to

generate understanding of the social and economic importance of the benefits of good environmental management.

The project is consistent with the objectives GEF Operational Programs No.2 *Coastal, Marine, and Freshwater Ecosystems*; Number 8, “*Waterbody Based Operational Program*”, which focuses “on seriously threatened water-bodies and the most important trans-boundary threats to their ecosystems”. No.9 *Integrated Land and Water Multiple Focal Area*; No.10 *Contaminated-Based* and No.12 “*Integrated Land and Water Multiple Focal Areas Operational Program*”. It applies the guidelines with respect to incremental costs and the log-frame.

### **Regional Context**

Although Bosnia Herzegovina has a small coastline the management of wastewater within its catchments is important in the context of addressing eutrophication and other pollution related threats to the **Adriatic Sea**.

### **Replicability**

This project builds on experience of projects addressing water treatment in the context of social, human health, economic and environmental benefits of waste water management. The proposal does not specifically address replication strategy but there is the implication of extending similar levels of treatment to other population centers.

### **Sustainability**

The financial situation of the water cycle companies is a critical factor for sustainability. In the longer term, progress beyond this project to more general adoption of a complete water treatment cycle will depend on community awareness of the benefits and consequent willingness to pay the charges that can sustain the costs of operation. This in turn will depend upon demonstration to the community and continuing appreciation by decision-makers of the economic, environmental and social benefits of high quality management of water and sewage.

### **Contribution to future strategies and policies**

As discussed above, success with this project should make an important contribution to the broader adoption of high quality water and sewage management, consequent reduction of nutrients and pollutants into environmental waterways and protection of some environmentally significant wetlands.

There is limited information on the wetlands component of the project but on the basis of the very limited budget provision there would appear to be capacity for little more than a survey to identify remnant areas of relatively intact wetland. Given the important and multiple roles that healthy wetlands can provide in nutrient assimilation, resource production, recreation, landscape and maintenance of biodiversity and ecosystem processes there appears to be a case for enhancing the wetland component. Protection of wetland areas is important but a clearer context of their geography, upstream dilution gradients and nutrient assimilation capacity will be needed

to underpin longer term conservation. Further, use of created or natural wetlands within their assimilation capacity can be an effective and important strategy in reducing nutrient levels before water flows reach aquifers or rivers. This is also important for appreciating the full range of economic values of wetland areas.

### **Involvement of stakeholders**

The project proposal recognizes that at this stage of its development:

“Improved handling of sewage is a social priority and perceived need”.

“The majority of respondents placed sanitation and sewage treatment high on the list of community needs.”

“Respondents readily saw the impact of untreated sewage not only on their immediate but also quite distant neighbors and the global ecology.”

“Respondents also saw improved service delivery as not only important for poverty reduction, but also as a precondition for a return of economic and cultural vitality. Community members were willing to be involved in community action to support improvements in service delivery, and were willing to pay for it.”

There is no discussion of approaches to achieve this beyond:

“It is expected that consultation with beneficiaries will be on a continuous basis during project implementation through public relations campaigns conducted by the private operator under the Municipal Water and Wastewater Project.”

The proposal includes a stakeholder education campaign to connect improved service and willingness to pay. There is no provision for community or school based education to address the broader community benefits in terms of linkages of social well-being - particularly human health - and environmental components of benefits.

### **Risk assessments**

To the extent that I can judge, being unfamiliar with the field operating situation, the risks are significant but seem to be reasonably addressed and I generally concur with the assessments.

### **Costs**

I have insufficient operational experience in the target area to make substantial comment on the detail of funding allocations. However, as discussed above the budget for the wetland component is very small at \$100K out of \$8.58 million GEF in almost \$24.55 million total. In the light of comments above on the broader role of wetlands in water treatment I would suggest that the design team consider making provision for a more detailed and substantial wetlands component in the program.

## **Conclusion**

This is an important project addressing the issues of sewage pollution and water quality in ways that reasonably reflect the operating constraints of the post War redevelopment of urban communities of Bosnia Herzegovina. Subject to more substantial consideration of provision for the project to address the role of wetlands in the water cycle I recommend that it should proceed.

RA Kenchington  
RAC Marine Pty Ltd

## **World Bank Response to STAP Reviewer Comments**

STAP review comments confirm that the project concepts' scientific and technical basis of reducing the level of sewage pollution contaminants flowing through to environmental waterways is sound. The review also states that the project addresses important environmental linkages in relation to national responsibilities in connection with the Danube and Black Sea Conventions and the Barcelona Mediterranean Convention. If this project achieves its objectives, the task team agrees that it will have clear benefits in addressing a significant source of nutrient pollution.

The task team also agrees with the review that as the project is successfully implemented, it will address an important element of the development/human health and well-being/environment linkage and should contribute to building national awareness of the importance and benefits of addressing environmental issues.

The proposal builds upon a number of sanitation, solid waste and water treatment projects conducted with Bank and other funding support. These projects are not stand alone environmental project linkages but consistent with pursuit of implementation and benefits of comparable pollution reduction demonstration projects.

In terms of replicability, STAP review stated that the proposal does not specifically address replication strategy but there is the implication of extending similar levels of treatment to other population centers. To ensure adequate replicability, technical assistance for replication has been included in the project design to enable the replication of the project outcome in the immediate drainage area of the Balkan region. The lessons learned would be beneficial to other regions as well. The project envisions scaling-up of successful initiatives.

The financial situation of the water cycle companies is a critical factor for sustainability. It is noted that the importance of financial variability of the utilities is the focus of the Bank's other projects, the Mostar Water Supply and Sanitation Project and the Urban Infrastructure and Service Delivery Project that concentrate almost entirely on financial viability and to cover operating and maintenance costs. Agreement was reached with the on line Ministries that it would be best to first focus on water supply (through Bank projects), reduce inefficiencies in the



system and improve financial conditions before embarking on any sanitation schemes. This sequencing is the appropriate way to proceed for cost recovery and sustainable investments. In addition, the WIP will further ensure that wastewater investments are taken in a low cost and phased approach.

The Stakeholder plan has also been elaborated in the social section of the PAD. An education plan has been developed under the Urban Infrastructure Development Project (co financing) to link the NGOs to local educational and health facilities at the municipal level. The materials developed for the local councils will draw on any existing literature available, and liaison between these agencies and the councils would be encouraged. The objective would be to generate a better understanding of the social and economic importance of the benefits of good environmental management by the beneficiaries as well as by local administrators. The campaign could subsequently be used as a pilot for replication at the national level.

The STAP review also stressed the need to increase the amount of the wetlands component. Otherwise, there would appear to be insufficient funds for only a survey to identify remnant areas of relatively intact wetland. Given the important and multiple roles that healthy wetlands can provide in nutrient assimilation, resource production, recreation, landscape and maintenance of biodiversity and ecosystem processes, it was agreed to increase the wetland component, which is referred to as the natural wastewater treatment pilot. In addition, if extra funds are available from GEF, the wetlands component can be further increased.

## **Annex 17: Stakeholder Plan**

### **BOSNIA AND HERZEGOVINA: WATER QUALITY PROTECTION**

#### **I. Introduction**

1.1 The following Stakeholder Plan has been prepared for the Water Quality Protection (WQP) Project prepared for GEF funding under the strategic partnerships for (i) Nutrient Reduction in the Danube River Basin and the Black Sea and (ii) a similar evolving proposal for the Mediterranean Sea. The preparation of this project has followed considerable involvement by the World Bank in the water and sanitation sector. Consultation with the stakeholders associated with portfolio of projects undertaken has been a consistent aspect of project development and design. It is also the basis for monitoring of the social impact of the project.

1.2. Central to the consultation process has been dialogue with a variety of ministries and local administrative units as well as with the utilities charged with providing related infrastructure services. This dialogue has been a sequential process that has enabled the developed of the project concept and the design of the specific components under the project. It is a key element in the ownership of the project by the Government.

1.3 Associated with this has been a concern for consultation with the users/beneficiaries of infrastructure services, in part to gain ownership of proposed projects but equally important in order to ensure the sustainability of investments under these projects.

#### **II. Social Assessment**

2.1 The social assessment for the WQP Project has been based on a composite of the social assessments conducted for three Bank projects in the sector. These assessment varied slightly in their structure and focus (water supply, sanitation, and solid waste), but commonly: identified primary and secondary stakeholders; collected baseline data including socio-economic data and access to services; identified and prioritized the most critical interventions to improve service delivery; identified community perceptions of the negative impact that inadequate service delivery has on the community from a social perspective, including poverty, health, and employment; and proposed a communication or information strategy for project implementation including a monitoring plan.

2.2 The methodology for the assessments builds upon: (i) face-to-face interviews based on a standardized questionnaire; (ii) focus group discussions with target groups drawn from (a) representative beneficiaries and (b) primary stakeholders, including Non-Governmental Organizations (NGOs); and (iii) in-depth interviews with representatives of local municipal government, utilities and other service providers, and key informants.

2.3 The findings provided by these assessments validate the concerns of the government in support of improved handling of sewage as a social priority and perceived need. The project itself and feedback from the community during implementation should also serve as a

reinforcement of this concern by government. The majority of respondents placed sanitation and sewage treatment high on the list of community needs. The variations reflected the actual situation in the specific community, but the respondents readily saw the impact of untreated sewage not only on their immediate but also quite distant neighbors and the global ecology. Respondents were willing to cover some of the cost of addressing improved sewage treatment. They highlighted the negative impact sewage discharge was having on traditionally valued scenic and recreational areas as well as on health. They recognized the value of in-country action as part of regional cooperation to meet global responsibilities.

2.4 Inadequate collection and treatment of sewage was seen to have significant social consequences; respondents maintained that the return of displaced persons and refugees would be greater if communities had adequate infrastructure and service provision. Two of the communities included in the project, for example, had just about initiated service on their then new plants only to have them destroyed in the war. The progress these facilities were to bring was eroded with depressing quickness.

2.5 Disparities in service levels within municipalities, again in part a function of the damage from the war, were also causing congestion problems as residents clung to those areas with better services. Respondents also saw disputes over service provision as a drain on social capital. Respondents saw improved service delivery as not only important for poverty reduction, but also as a precondition for a return of economic and cultural vitality. Community members were willing to be involved in community action to support improvements in service delivery and cost recovery.

### **III. Mostar Survey**

3.1 In view of the predominant investment scheduled for Mostar under the WQP Project and to monitor improved service delivery over time, an opinion survey of users was conducted in 2004 by the Vodovod responsible for waste water treatment in Mostar. The survey interviewed about 2,000 inhabitants in four locations: (i) the central part of town on the East Bank of the Neretva River, (ii) the suburban area extending from the East Bank of the Neretva River, (iii) the central part of town on the West Bank of the Neretva River, and (iv) the suburban area extending from the West Bank of the Neretva River.

3.2 The respondents were randomly spread in terms of age, employment status, and household size. The key focus related to costs and quality of service and ways the utility could improve the services it provided. About 35% of the respondents indicated a preference for better waster water collection and treatment.

### **IV. Feedback on Quality Assurance: the heart of the Stakeholder Plan**

4.1 Obtaining feedback on quality assurance will be the key to building a sense of local ownership of the improvements and reinforcing the willingness to pay for improved services. The approach will be to go into the local community and reinforce existing community mechanisms. As an additional benefit, the feedback activities will seek to solidify and encourage

ethnic reintegration. The Stakeholder Plan will include both feedback and an education campaign.

4.2 The model will follow the Stakeholder Plan under the UISD Project. The plan will build upon existing institutions, including the former neighborhood councils, or “mjesna zajednica”. Mjesna zajednica, translated as “local community,” is the smallest administrative unit in BiH that used to report to the municipalities on key issues and also provide some social needs at the neighborhood level.

4.3 Implementation of the Stakeholder Plan under the UISD Project is being delegated to local NGOs. This will include the formation of a user/stakeholder committee at the local level under the neighborhood councils. The stakeholders will participate in the review of any local issues and advise on the design of the community score cards to be used for monitoring user satisfaction. These cards will be periodically scored by the stakeholders with the facilitation of the NGO to show change over time.

4.4 The NGO will also link to local educational and health facilities at the municipal level and, where relevant, include them as stakeholders on the committee. The materials developed for the local councils will draw on any existing literature available, and liaison between these agencies and the councils/committees will be encouraged. The objective will be to generate a better understanding of the social and economic importance of the benefits of good environmental management by the beneficiaries as well as by local administrators. The plan will subsequently be used as a pilot for replication at the national level.

4.5 This same model will be used for the education campaign and stakeholder plan for the WQP Project. In this case, however, the utilities will staff their own internal customer service offices to facilitate the monitoring process at the neighborhood council level. The customer service offices will operate on the basis of the lessons learned by the NGOs under the UISD Project, accepting responsibility for the facilitation modeled by the NGO. As a result both institutional and social capital will be strengthened, and the score card monitoring process will become a sustainable component of utility operations at the community level. The undertaking of the Mostar Survey is a sample of first steps in capacity building by the utilities in advance of project start-up in order to assume this new customer service function.

## MAP SECTION



# BOSNIA AND HERZEGOVINA WATER QUALITY PROTECTION PROJECT

-  PROJECT INTERVENTION
-  MAIN ROADS
-  RAILROADS
-  DAYTON AGREEMENT LINES
-  MUNICIPAL BOUNDARIES
-  INTERNATIONAL BOUNDARIES
-  SELECTED TOWNS
-  NATIONAL CAPITAL
-  MAIN RIVERS

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