PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED CREDIT

IN THE AMOUNT OF SDR 14.3 MILLION

(US$18.0 MILLION EQUIVALENT)

TO THE

GOVERNMENT OF BOSNIA AND HERZEGOVINA

FOR A

SOLID WASTE MANAGEMENT PROJECT

May 23, 2002

Infrastructure and Energy Department
Europe and Central Asia Region
CURRENCY EQUIVALENTS
(Exchange Rate Effective May 21, 2002)

Currency Unit = Bosnian Marka (BAM)
1 BAM = US$0.469894 USD
US$1.00 = 2.12827 BAM

FISCAL YEAR
January 1 -- December 31

ABBREVIATIONS AND ACRONYMS

BiH: Bosnia and Herzegovina
CAS: Country Assistance Strategy
CQ: Consultant's Qualification
CE: Communal Enterprises
CSD: Communal Services Departments
EA: Environmental Assessment
EC: European Commission
ECA: Europe and Central Asia
EDSGF: Economic Development Strategy Global Framework
EIA: Environmental Impact Assessment
EMP: Environmental Management Project
EPA: Environmental Protection Agency
EU: European Union
FMS: Financial Management System
GEF: Global Environment Facility
IBRD: International Bank for Reconstruction and Development
ICB: International Competitive Bidding
IDA: International Development Association
IFAC: International Federation of Accounting
IS: International Shopping
LAC: Latin American Countries
LCS: Least-Cost Selection
LDP: Local Development Project
MIS: Management Information Systems
MOPE: Ministry of Urban Planning and Environment
MOT: Ministry of Treasury of Institutions
MeU: Memorandum of Understanding
MSWM: Municipal Solid Waste Management
MUCCE: Ministry of Urban Housing, Communal Services, Civil Engineering and Environment
NCB: National Competitive Bidding
NS: National Shopping
NGO: Non-Governmental Organization
PAD: Project Appraisal Document
PHRD: Policy and Human Resources Development Fund
PIT: Project Implementing Team
PMR: Project Management Report
PMU: Project Management Unit
PRSP: Poverty Reduction Strategy Paper
QCBS: Quality and Cost Based Selection
RS: Republika Srpska
SIMEPRODE: Monterey Metropolitan Waste Processing and Disposal System
SOE: Statement of Expenditure
SWM: Solid Waste Management

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Sector Director/Sector Manager: Hossein Razavi/Motoo Konishi, ECSIE
Task Team Leader: Seema Manghee, ECSIE
BOSNIA AND HERZEGOVINA
SOLID WASTE MANAGEMENT PROJECT

CONTENTS

A. Project Development Objective
   1. Project development objective 2
   2. Key performance indicators 2

B. Strategic Context
   1. Sector-related Country Assistance Strategy (CAS) goal supported by the project 2
   2. Main sector issues and Government strategy 3
   3. Sector issues to be addressed by the project and strategic choices 10

C. Project Description Summary
   1. Project components 12
   2. Key policy and institutional reforms supported by the project 12
   3. Benefits and target population 13
   4. Institutional and implementation arrangements 13

D. Project Rationale
   1. Project alternatives considered and reasons for rejection 14
   2. Major related projects financed by the Bank and other development agencies 16
   3. Lessons learned and reflected in the project design 17
   4. Indications of borrower commitment and ownership 18
   5. Value added of Bank support in this project 18

E. Summary Project Analysis
   1. Economic 19
   2. Financial 19
   3. Technical 20
   4. Institutional 21
   5. Environmental 22
   6. Social 24
   7. Safeguard Policies 27
F. Sustainability and Risks

1. Sustainability 27
2. Critical risks 28
3. Possible controversial aspects 28

G. Main Credit Conditions

1. Effectiveness Condition 29
2. Other 29

H. Readiness for Implementation 31

I. Compliance with Bank Policies 31

Annexes

Annex 1: Project Design Summary 32
Annex 2: Detailed Project Description 37
Annex 3: Estimated Project Costs 39
Annex 4: Cost Benefit Analysis Summary, or Cost-Effectiveness Analysis Summary 40
Annex 5: Financial Summary for Revenue-Earning Project Entities, or Financial Summary 42
Annex 6: (A) Procurement Arrangements 52
(B) Financial Management and Disbursement Arrangements 61
Annex 7: Project Processing Schedule 76
Annex 8: Documents in the Project File 77
Annex 9: Statement of Loans and Credits 78
Annex 10: Country at a Glance 80
Annex 11: Social Assessment - Key Findings 82
Annex 12: Communication Strategy 87
Annex 13: Project Area Description 90

MAP(S)
BOSNIA AND HERZEGOVINA
Solid Waste Management Project

Project Appraisal Document
Europe and Central Asia Region
ECSIE

Date: May 23, 2002
Team Leader: Seema Manghee
Country Manager/Director: Christiaan J. Poortman
Sector Manager/Director: Motoo Konishi, Hossein Razavi
Project ID: P057950
Project(s): VP - Pollution Control / Waste Management
Leading Instrument: Specific Investment Loan (SIL)
Theme(s): Water; Urban
Poverty Targeted Intervention: N

For Loans/Credits/Others:
Amount (US$m): 18.00
Initial choice of Interest-rate basis:
Type of repayment schedule:
[X] Fixed at Commitment, with the following repayment method (choose one):
[ ] Linked to Disbursement

Proposed Terms (IDA): Standard Credit
Grace period (years): 10
Years to maturity: 35
Commitment fee: .50

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Borrower: GOVERNMENT OF BOSNIA AND HERZEGOVINA
Responsible agency: FBH MINISTRY OF PHYSICAL PLANNING AND ENVIRONMENT
RS MINISTRY OF URBAN HOUSING, CIVIL ENGINEERING AND ENVIRONMENT
Address: 71 000 Sarajevo Titova 9a, Bosnia and Herzegovina and 51 000 Banja Luka Trg Srpskih Junaka 4, Bosnia and Herzegovina
Contact Person: Minister Ramiz Mehmedagic, Minister Nedjo Djuric
Tel: 387 33 663 548/387 51 215 511 Fax: 387 33 473 124, 387 51 215 548 Email: fnobnova@bih.net.ba | urb@urb.vladars.net

Estimated Disbursements (Bank FY/US$m):

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Project implementation period: FY 2003-2007
Expected effectiveness date: 09/16/2002 Expected closing date: 08/31/2007
A. Project Development Objective

1. Project development objective: (see Annex 1)

The main objectives of the proposed project are to: (a) cost effectively improve solid waste services in participating priority areas; (b) increase administrative and technical capacity for solid waste management at the local and Entity level; (c) improve cost recovery in the sector and encourage private sector involvement; and (d) correct environmental problems and reduce health hazards caused by inadequate waste collection and disposal systems.

2. Key performance indicators: (see Annex 1)

Key performance indicators would relate to: (a) solid waste disposal (establishment of multi-municipal waste management districts, regional landfill sites, and transfer stations; reduction in the number of wild dumpsites); (b) institutional strengthening (strengthening of appropriate institutions to manage solid waste services, preparation of Business plans for future development of waste disposal sites, education and public awareness campaigns); (c) cost recovery (establishment of a cost-recovery system and an agreed program for its gradual improvement; billing and collection statistics); and (d) private sector involvement (service contracts, recycling and selected other joint ventures with domestic or foreign private companies).

B. Strategic Context

1. Sector-related Country Assistance Strategy (CAS) goal supported by the project: (see Annex 1)

Document number: 20592-BiH for the CAS and No. 22863-BiH for the CAS Progress Report

Date of latest CAS discussion: 5/18/2000 for the CAS and 10/18/2001 for the CAS Progress Report

The second Country Assistance Strategy (CAS) was presented to the Board in May 2000. The most recent CAS-related discussion took place on October 18, 2001 on the CAS Progress Report (Doc. No. 22863-BiH). When the second CAS was reviewed by the Board, the economy was still enjoying the benefits of the strong post-conflict growth fueled by high foreign aid inflows. The bulk of physical reconstruction had been completed and the country was pursuing a clearly established reform agenda. The key objective of the Bank’s CAS for the 2000-02 period is to further contribute to the creation of a single and viable economic space and to increase economic opportunities and improve the quality of life for all Bosnians, with poverty reduction as an overarching, cross-cutting theme. An interim Poverty Reduction Strategy Paper (PRSP) was completed in December 2001, and a full PRSP is scheduled for completion in 2002. The strategic objectives of the CAS are: (a) to help strengthen weak and fragmented governance structures; (b) foster private sector-led growth and employment; and (c) establish affordable and equitable social services.

The CAS states that there are important environmental issues at the local level, in particular regarding waste disposal. The CAS also emphasizes the need to increase private sector involvement in public services. The project supports these objectives by creating new waste disposal sites meeting high standards and improving service quality, by addressing environmental concerns through more efficient waste collection and proper disposal, and by improving cost recovery, which is a key condition for involving the private sector.
2. Main sector issues and Government strategy:

Background

Bosnia and Herzegovina (BiH) is made up of two Entities: the Federation of BiH and the Republika Srpska (RS). The Federation is made up of 10 Cantons and 80 municipalities. RS does not have Cantons but has seven regions and 61 municipalities.

Before the war, collection of waste was organized purely at the local level. There was only partial separation of waste collection and recycling. Waste from urban locations was transported to local landfills and dumped, although with limited controls. Today, there is some Entity and Cantonal oversight. However, the equipment for waste collection and disposal is mostly obsolete and/or poorly maintained. As a result, 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, road sides, small village dumps, rivers, and mines, posing a direct risk to public health. Waste collected by municipalities is often disposed in "official" dumpsites, that are generally 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 most serious problems caused by such dumpsites include the deterioration in groundwater quality, the destruction of vegetative cover, and the proliferation of insects and rodents that are disease vectors. These serious public health and environmental problems are worsened by weak institutional and enforcement capacity. Furthermore, odors and unsightliness discourage development in the immediate vicinity of these dumps and end up being harmful to overall economic development.

Current institutional arrangements. In the Federation, the Ministry of Urban Planning and Environment (MOPE) is responsible for waste management policy and legislation while other Ministries also play a role: Ministry of Agriculture, Water Utility and Forestry for wastewater discharge; Ministry of Health for clinical waste management; and the Ministry for Energy, Mining & Industry for industrial waste management. The organization is similar at the Cantonal level. The Cantonal Ministries are largely responsible for policy and legislation in their respective fields. Within the municipalities, the Communal Enterprises, which come under the Communal Services Department, are usually responsible for waste management as well as collection of fees from customers. In the RS, the Ministry of Urban Housing, Communal Services, Civil Engineering and Ecology (MUCCE) is responsible for waste management policy and legislation. There is no Canton structure but the organization of services in the municipalities closely resembles that of the Federation.

Service providers. Waste collection is almost always done by the Communal Enterprise, which also is responsible for other municipal services such as street cleaning, snow clearance, and watering and maintenance of gardens and parks. Sometimes Communal Enterprises branch out in areas such as funeral services, road maintenance, or operation of car parking lots. Their staff are public sector employees who are highly dependent on the municipality for office space and capital. Communal Enterprises generally do not have a formal contract with the municipality but collect waste from hospitals, industries and commercial/retail businesses under separate contracts. The collection of domestic waste is somewhat satisfactory in urban areas that have waste collection despite the old vehicles and lack of containers. Suburban and rural areas, however, usually do not have waste collection services. The disposal operations run by Communal Enterprises are, as noted above, in need of improvement.
Main sector issues and general best practice

Issues: World-wide, municipal solid waste management is often a costly and vexing problem for local authorities. There is low service coverage, especially in low-income neighborhoods. On the management side there are substantial inefficiencies at the same time that there are insufficient resources. And in too many places there is still widespread open dumping. The result is a high cost to society in terms of public health impacts and environmental degradation. The following issues need to be addressed if real improvements are to be achieved:

- Extension of service coverage, especially into poor neighborhoods, based on the concepts of demand management, affordability and participation;
- Closure or rehabilitation of existing open dumps while at the same time protecting the livelihood and health of waste pickers and their families;
- Introduction of sanitary landfills as the backbone of disposal operations, often in the face of strong social opposition of Not in My Back Yard (NIMBY);
- Integration of complementary systems such as transfer, selective collection, recycling, and composting (where it makes economic sense), together with public education campaigns and incentives for waste reduction at source;
- Definition of better healthcare waste management systems;
- Introduction of adequate user charges and collection mechanisms so as to achieve self-financing, along with needed cost accounting and management information systems;
- Promotion of private sector participation, including micro- and small-scale enterprises, as a response to often weak municipal operational capacity; and
- Development of cooperative mechanisms that would enable municipalities to undertake shared disposal solutions, especially in metropolitan areas.

The situation in BiH reflects this global experience with municipal solid waste management.

Strategies for improvement: To better address this set of issues, progress on five fronts is needed simultaneously. First, an integrated, comprehensive strategic planning framework should be adopted at the national and local levels, especially for large cities. Second, better institutional arrangements is needed in the sector. Third, a more efficient operational management. Fourth is the need for more effective financial management. Fifth, attention should be given to improving environmental protection. Each of these five strategies is discussed in greater detail as they pertain to BiH.

1. Strategic service planning: Large cities and urbanized regions should be encouraged to undertake strategic planning to design and implement integrated solid waste systems that are responsive to demographic and industrial growth. Strategic planning starts with the formulation of long-term goals based on the needs of a particular city or region, followed by a short- and medium-term action plan to meet the goals. The strategy and action plan should identify a clear set of integrated actions, responsible parties and needed human, physical and financial resources. The strategic plan should match service levels to user demand and affordability, especially for the urban poor. It should also integrate all components of the service system: waste minimization, collection, transfer and transport, recycling, treatment, and final disposal.

A more comprehensive policy framework is also needed at the national and provincial levels. It should link public health, environmental and decentralization policies more closely together so that they are mutually supportive. It should also provide incentives to municipal authorities to deliver better services, recover more costs from users, and cooperate with neighboring municipalities. For smaller or weaker municipalities, there should be a focus on technical and financial assistance. Also, the economies of scale resulting from grouping smaller municipalities to share disposal facilities can significantly affect the
affordability of services, particularly disposal operations. The main roles of central authorities should be to establish an appropriate policy and regulatory framework, carry out institutional reforms, and provide technical assistance and access to finance for local authorities.

An integrated Municipal Solid Waste Management (MSWM) system starts with the collection and transport operations, and ends with final disposal in a sanitary landfill. These are the essential building blocks of any solid waste management (SWM) system. Before collection, households, businesses and other waste generators should be motivated to minimize the amount of waste they produce. In between, additional operations such as transfer, resource recovery and recycling, and treatment for example, composting should be addressed. Decisions about added operations will depend on both technical and economic/financial feasibility, as well as social acceptability (as household and business participation is essential).

These intermediate operations may also require that waste streams not be mixed indiscriminately, which in turn may necessitate household segregation and special storage, collection and handling of some individual waste streams – always at increased costs. Whatever recycling or treatment may take place, there will always be significant residuals/rejects that require landfilling. Markets for recyclables and compost must also be verified. These considerations point out the need for a comprehensive study of options, selecting the best mix of options based on affordability and cost-effectiveness criteria, and public education and participation as the basis for long-term success.

2. Better institutional arrangements: More effective institutional arrangements will involve putting in place inter-municipal and inter-sectoral coordination mechanisms. Special agreements, often voluntary in nature, will have to be crafted among municipalities for the development of shared facilities for transfer and disposal. These agreements must include joint decision-making mechanisms and cost sharing for facility financing and operation. For smaller municipalities, a shared sanitary landfill is economically attractive because of the high economies of scale and joint cost savings, and the higher level of environmental protection that it normally provides.

On the other hand, little need exists for joint collection activities due to low economies of scale. Most municipalities can manage collection services on a decentralized scale, including the competitive contracting out of collection districts with private haulers.

Another area in need of attention is providing greater opportunities for public participation in the decision-making process, especially for facility siting. Several Bank-supported projects have suffered major perturbations and time delays as a result of the NIMBY syndrome, which is as active in developing countries as in the industrialized countries. Dealing with NIMBY requires long lead times and the early involvement of the public through information and education campaigns, public hearings and a real role in decision making. One way to avoid NIMBY is to rehabilitate existing dumpsites and convert them to controlled landfills. Rehabilitating existing sites is the strategy followed in BiH.

3. More efficient operational management through private sector participation: One of the proven ways of obtaining efficiency gains in solid waste management is through the involvement of the private sector, but only when the key success factors of competition, transparency and accountability are present. The private sector improves efficiency and lowers costs by introducing commercial principles such as limited and well-focused performance objectives, financial and managerial autonomy, a hard budget constraint, and clear accountability to both customers and providers of capital. The private sector plays other important roles by mobilizing needed investment funds, and by providing new ideas, technologies and skills. By corporatizing Communal Enterprises in the BiH and subjecting them to competition, efficiency gains can be expected.
4. More effective financial management: Adequate cost recovery is the key to both sustainability and private sector participation in solid waste management. User charges are commonly utilized to recover a portion of the costs of solid waste management from those generating the waste. User charges can generate substantial revenues and provide incentives to minimize waste, especially if structured so that those who pollute more, pay more ("polluter pays principle"). Although user charges can be imposed at different stages of solid waste management (including collection and disposal), in many cities they do not cover the full costs of solid waste management activities. While citizens and enterprises are generally willing to pay for solid waste to be collected, they are often unmindful of the need to pay the full cost of disposing of the waste in a sanitary manner. Experience in many countries has shown that charging the full costs of disposal may create incentives for littering and open dumping, especially if the enforcement of anti-dumping regulations is weak.

Analysis of the financial records in BiH cities shows that current practices for cost recovery for solid waste are weak but have substantial scope for improvement. Options to recover the costs associated with solid waste management range from instituting or enhancing garbage taxes, collecting tipping fees, or relying on other general revenues (including the property tax and business licenses). Choosing among these options depends upon the relative importance of various criteria: whether revenues are adequate and easily collected, whether the polluter pays for the damage inflicted, whether the option is politically acceptable, and whether payment of the revenue can be enforced. Given the difficulties associated with collecting user fees in most places, even in industrialized countries, fee collection usually remains with municipal authorities and not with the waste management operator.

5. Improved environmental management: The closure of existing open dumpsites and the introduction of sanitary landfill is an urgent priority everywhere in transition and Part II countries. Even where complementary disposal technologies such as composting are practiced, a landfill is still required and is the backbone of any sustainable disposal system. Given the essential nature of the landfill for final disposal, and the lack of local experience and financial resources for introducing sanitary landfills, central Government support in terms of technical assistance and access to financing is needed in many lower and middle income countries. Matching grants designed to encourage landfill investments and sustainable operations may also be an appropriate instrument to consider, primarily because the environmental damages and benefits tend to spill over into neighboring municipalities and regions.

As has already been pointed out, in the process of planning for and siting any disposal facility, it will be necessary to anticipate the NIMBY syndrome and plan for public involvement in siting decisions. Siting decisions also require the conduct of Environmental Impact Assessments (EIAs) and the incorporation of recommended mitigation measures in the final design, construction and operation of the facility. Finally, when planning for landfills, consideration should also be given to innovative design options like bioreactor landfill design for more rapid stabilization of biodegradable wastes with methane recovery and utilization. The latter point is particularly important given the need to minimize the escape of methane to the atmosphere as it is a potent greenhouse gas.

Given the above-mentioned difficulties in siting, designing, and operating proper sanitary landfills, and the increased costs that are implied in moving from open dumping to sanitary landfills, significant benefits accrue to developing larger regional landfills to service multiple municipalities. The benefits are primarily lower costs due to large economies of scale, and the ability to support higher environmental protection standards.
Government Strategy

Priority for solid waste. The Government recognizes the need to significantly strengthen BiH’s capacity to safely manage its solid wastes and has identified this as a priority in its Economic Development Strategy Global Framework (EDSGF). The EDSGF is the Bosnian-owned strategy replacing the donor-led Priority Reconstruction and Recovery Programs for Policy and Development Assistance. The EDSGF states that solid waste sites have to be restricted to a relatively small number due to the limited available resources and that, in most cases, a regional site should be used by several adjacent urban and associated rural areas.

Nationwide Solid Waste Management Strategy. The European Union (EU) funded preparation of a Nationwide Solid Waste Management Strategy in BiH that was completed in August 2000. The Strategy was the first think piece on solid waste after the war. It recommends a wide range of technical, institutional and financial upgrading measures over the next 15-20 years. The key part of the Strategy centers on the management of household and similar wastes. It is based on the establishment of multi-municipal districts covering a minimum of 200,000 persons each, which would be responsible for the operation of regional waste transfer, treatment, and disposal facilities. Waste collection responsibility would remain with individual municipal Communal Services Departments, with collection operations carried out under service contracts with Communal Enterprises or private operators. In the short- and medium-term, the strategy emphasizes the goals of universal collection coverage, the introduction of regional sanitary landfills, and the closure and rehabilitation of open dumps. In the long run, it is believed that less populated regions would also join and waste would be transported to fewer but larger landfills. Recycling, composting, waste-to-energy options, and introduction of clinical waste incineration are also contemplated. However, the Government recognizes that the integration of these components into the BiH waste management system will require at least 10 years or more and needs to build upon much-strengthened waste collection and disposal capacities.

The Government is keen to implement part of the Strategy, specifically the recommendation of establishing regional waste management disposal districts through cooperation among neighboring municipalities as it is recognized that the proliferation of small sanitary landfills in many single municipalities is neither affordable nor environmentally sound. For both economic and ecological reasons, the minimum recommended size of sanitary landfills is in the 200 to 300 tons per day range. The Strategy recommends environmental standards that will be required for eventual EU accession but it is not appropriate for current conditions in BiH. It is important to note that currently, BiH is not on any formal list towards EU accession. Thus it is quite reluctant to immediately implement stringent (and costly) EU standards, the establishment of new departments such as an Environmental Protection Agency that will require additional resources and additional personnel, as well as capital-intensive waste-to-energy schemes.

The Government is hampered by the limited funding available to the sector. As a result, the Government is working on a National Strategy in the context of affordability and implementation capacity in BiH. Thus, the Government intends to proceed with a priority first phase (2001-2005), a second phase (2005-2010) and a long-term plan (2010-2015). The Government has asked the World Bank to assist with the first phase focusing on landfill rehabilitation; safe methods of disposal; public awareness; training of sector staff; and extending waste collection to those areas that are not currently serviced.

Multi-municipal (regional) landfills. 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. In addition, because small municipalities generate limited quantities of waste, it would be uneconomical for individual municipalities
to operate their own landfills. With the possible exception of Sarajevo, it is apparent that few, if any, municipalities in BiH generate enough waste to develop and operate their own independent sanitary landfills in a cost-effective and safe manner. The multi-municipal concept involving one site for several urban and associated rural areas is seen as a viable approach to the current solid waste management problem, since shared waste treatment and disposal sites are known to result in significant economies of scale.

As municipalities begin to share regional landfill sites, there will be a need to establish transfer stations to provide cost effective transportation of wastes from more remote municipalities to landfills. Transfer stations can take many forms and the Government favors low-cost transfer stations that are simple in design to reduce transport costs to sites and to optimize local vehicle time for waste collection.

**Legislation.** Various laws such as the Water Law, (Draft) Environmental Protection Law, Law on Urban Planning, and so forth, affect solid waste management in BiH. Most existing laws and regulations, however, make broad references to solid waste management and do not provide a basis for sound environmental management of waste. The European Commission undertook the development of draft environmental framework legislation for BiH. This should lead to environmental regulatory systems that are in alignment with both of the Entities. This work provides a cohesive environmental policy by presenting a clearer understanding of the principles of environmental legislation and regulation and the links between environmental regulatory mechanisms and the economy, particularly with regard to integrated pollution prevention and control. There are also specific framework laws related to waste management, water protection, air protection, nature protection and integrated pollution prevention and control.

The draft Waste Management Law provides the framework for solid waste management. It seeks to clarify the responsibilities of solid waste agencies within both Entities and the Cantonal and municipal governments and make clear the roles and responsibilities for solid waste management from the municipalities to the State level by addressing the following: (a) waste management priorities and principles; (b) the responsibilities of agencies involved in waste management; (c) the roles of the waste producers, collectors, transporters disposers; (d) hazardous/clinical wastes; (e) transboundary movement of wastes; and (f) regulation, licensing, inspection, and sanctions. As written, the Draft Law does not require immediate compliance with EU waste management directives, but neither does it conflict with EU directives. Thus, the Draft Law gives the BiH sufficient latitude to attack priority waste management issues without getting sidetracked by more stringent and costly EU requirements in the short term.

The draft Environmental Protection Law seeks to establish an autonomous Environment Protection Agency (EPA) at the State level that would, in addition to other responsibilities, be in control of licensing, monitoring and regulation of solid waste management. The priority of the Government, however, is the draft Waste Management Law that relies upon the existing Entity and Cantonal environmental inspection structures for enforcement and control, and the consensus is to proceed for now without creating an EPA with a Solid Waste Management Department until a later phase of legislative reform.

**Private sector.** Due to the general decrease in public spending after the war and a decline in donor financing, there is less funding that the Government can allocate directly for public services. The Entity Governments are exploring ways to introduce private sector participation in providing range of services including waste collection, transport/transfer, disposal, and rehabilitation and closure of dumps. Currently, opportunities in waste recycling involving the private sector are also being explored (e.g., a battery recycling factory in Tesanj, buy-back of aluminum in Mostar) and will be further developed during project implementation.

Prior to involvement of the private sector in providing municipal services, it will be critical for the municipalities to establish commercial discipline in maintaining their finances and operations, and to
separate the regulator, client, and operator functions. This is fundamental given the present limited shortage of management skills in municipalities and lack of transparency regarding revenue sources and expenditures. In this context, a practical option would be to create a management nucleus in the municipal CSDs with responsibility for contracting out services and for billing and fee collection (to raise sufficient resources to pay service operators). The present Community Enterprises or private operators would be engaged by the CSDs through service contracts after transparent and open competitive bidding for the provision of waste collection services, and possibly for the operation of transfer stations.

Assets such as land and facilities would continue to be owned by the municipality, but collection vehicles could eventually be provided directly by private operators. Regional disposal authorities would be managed by Inter-Regional Boards with representatives from the corresponding municipal CSDs and would be financed by tipping fees (on a per ton basis) paid by the municipalities and by private waste haulers. The regional authorities would have the option to contract or concession out disposal operations with the Community Enterprises or private operators. While major asset ownership would remain with the authority and/or constituent municipalities, private operators could be asked to provide the necessary heavy equipment.

Cost recovery. Almost all of the waste services fees are currently collected by the Communal Enterprises, but the fees are set by the municipal assembly and vary considerably across municipalities. In most municipalities, all communal services (waste management, water supply, street cleaning, and so forth), are covered by one invoice to households. In Sarajevo, Mostar, Tesanj, Banja Luka and a few other major cities, municipal services are provided by a single Utility and these large cities have high bill collection rates for waste collection and disposal, but in many other municipalities these services are not financially viable. In the majority of the municipalities, there is no legally binding provision to pay. Even the cities with higher collection rates, the fees are generally set too low to finance all waste management operations. The Communal Enterprises collect waste removal fees from hospitals and industries based on the floor space the occupy. Neither the industries nor the hospitals consider this a fair system and, as a result, the majority are unwilling to pay their bills.

Poor bill collection rates and low fee levels have led to a situation where most Communal Enterprises are vastly underfunded, resulting in limited maintenance or no new equipment purchases. This is exacerbated by the fact that the collected revenue is not managed properly. In a number of municipalities, the revenue is used to fund services such as street cleaning, maintenance of parks, etc., and it is consequently impossible to figure out how much is spent on each service. The objective is for solid waste management to become autonomous and self-financing through user charges, as is the case in Sarajevo and Tesanj. The long-term strategy is to have CSDs responsible for fee collection and to introduce improved financial and accounting practices.

Wild dumpsites. Numerous illegal dumpsites can be found in each of the municipalities, many of them dating from the war. These wild dumpsites contain various household, industrial, and hazardous clinical wastes and even animal carcasses. The clean-up and closure of these wild dumps, which is a priority, will generate supplementary waste that will also need to be properly removed and disposed of in the future. Furthermore, it will not be possible to close all illegal dumpsites until an alternative is provided to receive waste on a daily basis – in this case, a regional sanitary landfill.
Other municipal projects financed by the Bank

The Bank is also working with municipalities through ongoing Bank projects such as the Local Initiatives Project, Community Development Project and the Local Development Project. The Local Initiatives Project seeks to address the urgent need to raise incomes and create jobs in BiH through provision of financial services to the smallest businesses, from the informal self-employed to small enterprises. The project focuses on investing in the growth and institutional development of high-performing microfinance institutions that have the capacity to serve significant numbers of low-income clients.

The Community Development Project's objectives are improvement of basic services and facilities (through investments in non revenue generating socially oriented projects and programs) for low income and poor communities in under-served municipalities and improvement of governance and institutional capacity of local governments. By focusing on these communities, it would fit with the Local Development Project (LDP). The LDP aims to strengthen the institutional and financial capacity of more developed local governments. In addition, the LDP pilots a line of credit as a source of long-term financing for infrastructure investment in creditworthy municipalities, and is expected to benefit 20 municipalities.

The proposed Solid Waste Management project dovetails with the LDP and avoids duplication by asking creditworthy municipalities to apply in first instance for funding from the LDP for suitable hardware components below the LDP’s $450,000 credit ceiling. Due to the cooperative arrangements being sought between different municipalities under the proposed project (i.e., multi-municipal waste disposal services), financing of all multi-municipal components and components exceeding the LDP’s credit limit would be financed from the proposed Solid Waste Management project.

3. Sector issues to be addressed by the project and strategic choices:

Appropriate and least-cost technologies. The project focuses on existing landfill rehabilitation as opposed to construction of new landfills. This will allow investments to be targeted to maximize current assets, i.e., the existence of adequate landfill disposal capacity. This strategy reflects a calculated decision not to invest in costly high-technology waste processing options at this stage. Recognizing the need for longer-term development, the institutional component of the project will prepare a medium and long-term Business plan for future development of integrated waste management options.

Selection of participating areas. The main selection criteria for participating areas include:

- Self-selection (and ownership) expressed through the formal signing by participating municipalities of a joint Memorandum of Understanding (MoU) demonstrating willingness to cooperate in regional schemes and share costs, and backed up by municipal council resolutions and documents of support from major community, civic, and business organizations have been obtained from all the areas prior to including them in the project;
- Sufficient number of participating municipalities to ensure a service population greater than 150,000;
- Range of physical and geographic conditions, and urban size;
- Beneficiaries (the inter-municipal Utilities) must provide counterpart funding and repay the loan, and be willing to levy appropriate user charges to recover costs; and
- Environmentally appropriate physical and geographic conditions of the landfill proposed for rehabilitation.
**Final site selection.** The areas where the sites will be rehabilitated include Tuzla Canton, Banja Luka region and Herzegovina Neretva Canton (Mostar), which all fulfilled the above criteria (see Annex 13 for additional site information). The site selection of the sanitary landfills was made to minimize environmental damage. To this end, all of the sites - Tuzla, Banja Luka and Mostar - are ongoing operations where the project would improve disposal practices. From the investment and operating cost perspective, rehabilitating an existing operation is also attractive since the incremental costs are likely to be lower than constructing a completely new landfill.

The landfill sites were also selected in order to minimize the incremental costs per capita of population served. To this end, a proper balance was struck between the economies of scale of combining landfills for a number of Cantons, which would reduce investment costs per capita given the high economies of scale and the need to transport waste over longer distances (which varies in direct proportion to the number of persons served by a landfill site and in indirect proportion to the respective population density of the selected areas).

**External interests.** Those involved in waste management are frequently in favor of the introduction of the latest technologies but also recognize they are not affordable in the near future. Strong interests, supported by foreign suppliers, push high technology solutions such as waste incineration, anaerobic digestion, etc. These options, even in highly developed countries, are restricted in their application by their prohibitive costs along with technical and operational issues. Therefore, the Government strategy endorses the rehabilitation approach, particularly since landfill disposal capacity is available and can be developed in the short term. The proposed project fully supports this strategy.

**Private sector participation.** It is critical to move towards more commercial operations in solid waste management. One of the ways in which the proposed project supports this is through service contract with private sector operations. This method is considered advantageous as it would: (a) allow municipalities to keep using the existing Communal Enterprise services; (b) force Communal Enterprises to operate on a commercial basis in a competitive environment; (c) bring transparency in billing and collection; and (d) force the municipality to plan efficient and effective waste management services taking into account available financial resources.

**Financial viability.** A challenging aspect of the project will be to improve the situation in the sector with regard to fees and collections. To ensure transparency and public acceptance, fees should be closely linked to the delivered services, as the same Communal Enterprise often provides several services. Most Communal Enterprises outside the large cities have inefficient fee collection systems, as they have no leverage over customers (for public health reasons, waste collection services cannot be discontinued). This is compounded by the fact that a large segment of the population is not used to paying for these services and perceives them (as with water supply) as free goods. Raising awareness of the need to pay for improved waste collection and disposal services among the public and municipal authorities will be an important part of the institutional component of this project. In order to ensure the sustainability of the regional transfer operations and sanitary landfills to be established under the project, both municipal and private waste haulers will have to pay a tipping fee collected on a per unit of weight basis at the transfer and disposal sites. The tipping fee should cover the costs of developing and operating the landfill, as well as closure and aftercare costs. Municipal tariffs for solid waste services will have to include provision for this tipping fee.

**Public communications and outreach program.** Through its institutional strengthening component, the project will support communications activities needed for proper functioning of the overall solid waste management system. These activities will include education and public awareness initiatives on solid waste
issues such as the need for public cleanliness, the role of households in the storage and collection of domestic refuse, and health and environmental problems caused by illegal dumping of wastes in rivers and creeks, roadsides, abandoned mines, or empty lots. This component will also include information on the project, as well as public consultations during project implementation. Additionally, because the current limited and unreliable levels of solid waste collection services do not motivate the general population to pay associated fees, the project will also seek to promote a change of attitude from local residents with respect to payment of service fees.

C. Project Description Summary

1. Project components (see Annex 2 for a detailed description and Annex 3 for a detailed cost breakdown):

<table>
<thead>
<tr>
<th>Component Description</th>
<th>Indicative Costs (US$)</th>
<th>% of Total</th>
<th>Bank Financing (US$)</th>
<th>% of Bank Financing</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Waste Management Component</td>
<td>15.71</td>
<td>74.8</td>
<td>15.09</td>
<td>83.8</td>
</tr>
<tr>
<td>Rehabilitation of landfill sites</td>
<td>15.71</td>
<td>74.8</td>
<td>15.09</td>
<td>83.8</td>
</tr>
<tr>
<td>- Closure of wild dumps</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Collection infrastructure and support equipment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Transfer stations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. Institutional Strengthening</td>
<td>1.07</td>
<td>5.1</td>
<td>0.61</td>
<td>3.4</td>
</tr>
<tr>
<td>- Public Communication program and environmental monitoring</td>
<td>1.07</td>
<td>5.1</td>
<td>0.61</td>
<td>3.4</td>
</tr>
<tr>
<td>- Medium-term Business plan</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C. Engineering Services/Technical Assistance</td>
<td>2.78</td>
<td>13.2</td>
<td>1.90</td>
<td>10.6</td>
</tr>
<tr>
<td>- Engineering Services for design and construction supervision</td>
<td>2.78</td>
<td>13.2</td>
<td>1.90</td>
<td>10.6</td>
</tr>
<tr>
<td>- Technical Assistance for waste management and landfill operations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D. Project Management Unit (PMU)</td>
<td>0.50</td>
<td>2.4</td>
<td>0.40</td>
<td>2.2</td>
</tr>
<tr>
<td>E. Operating Costs</td>
<td>0.94</td>
<td>4.5</td>
<td>0.00</td>
<td>0.0</td>
</tr>
<tr>
<td>Total Project Costs</td>
<td>21.00</td>
<td>100.0</td>
<td>18.00</td>
<td>100.0</td>
</tr>
<tr>
<td>Total Financing Required</td>
<td>21.00</td>
<td>100.0</td>
<td>18.00</td>
<td>100.0</td>
</tr>
</tbody>
</table>

2. Key policy and institutional reforms supported by the project:

The main policy and institutional reforms sought under the project will include:

- Adoption and implementation of a national strategy for phased improvement of municipal solid waste management;
- Introduction of regional solutions creating multi-municipal transfer and disposal systems based on
cost-effective technologies;
- Establishment of local cost recovery plans and agreed programs for gradual improvement until self-financing is achieved; and
- Creation of a transparent and competitive environment for expanding municipal waste collection services in an efficient and accountable way through increased private sector participation.

3. Benefits and target population:

The project would benefit the population as a whole through improvements in environmentally sustainable and cost-effective solid waste management services. By the end of the project, more than 800,000 people would have access to better solid waste management services. They would also enjoy public health benefits from the closure of the wild dumps located throughout cities and villages, which would return urban and rural land to fitting use. In rural areas and in smaller districts, the target population would focus on those living in the vicinity of wild dumpsites, particularly women and children who normally are responsible for waste disposal and water supply. The population and, in the long run, the tourism industry would benefit from clean and aesthetically pleasing surroundings. Benefits would also accrue through appropriate planning of future development geared to BiH needs and capacity through the phased approach of medium and long-term plans based on appropriate technology, affordability and environmental protection.

4. Institutional and implementation arrangements:

**Implementation Arrangements.**

The project would be implemented during FY 2002-2007 under the overall responsibility of the Ministry of Physical Planning and Environment in the Federation and the Ministry of Urban Housing, Civil Engineering and Environment. A Project Management Unit (PMU) has been established in the Federation for implementation, including procurement and financial management aspects, of the proposed project. The PMU is being appropriately staffed by qualified personnel. A Procurement Manager, Procurement Officer and Accountant have been hired. The PMU will consist of a PMU Head, Procurement Manager, Procurement Officer, Financial Manager and Accountant. Project Implementing Teams (PITs) will be located in the Solid Waste Utilities managing the landfill site. The PITs will consist of a Procurement Officer and Accountant besides other technical staff. The PMU will have overall responsibility for implementation, including procurement and financial management actions. The PMU will manage the implementation of the project and the PITs will work closely with the PMU.

The PMU is in the process of recruiting an experienced procurement expert (external consultant) to assist with procurement matters and where needed, project supervision, during the first year of project implementation. The procurement expert will have adequate working experience in Bank-financed procurement and will be appointed before the effectiveness of the credit or the project launch workshop. A temporary procurement expert has been hired to assist the PMU on finalizing the tender documents for the first year's investments.

**On lending arrangements.** The Federation Government, through the Ministry of Finance would on-lend the Credit to the Utilities in the Federation. The RS Government, through the Ministry of Finance would on lend the credit to the Utility in RS. The Government would receive the standard IDA terms with a 10 year grace period, a final maturity of 35 years, a service charge of .75%, and a commitment fee of .50%.

**Fund flows.** The accounting and financial flows for the Project are described Annex 6 (b). The financial flows will comprise mainly of: (a) the Bank, via a single Special Account (in two sub-accounts), which will be replenished on the basis of Statement of Expenditures (SOEs) or by direct payment on the basis of direct-payment withdrawal applications; or (b) the Government, via the Treasuries at the Ministries of
Finance (MOFs) in the Federation of BiH and RS on the requests made by the PMU via the Ministry of Physical Planning and Environment in the Federation and the Ministry of Urban Housing, Civil Engineering and Environment in the Republika Srpska. The fund flow arrangements from the IDA credit, government contribution, participation from Utilities, and donors were finalized during the Negotiations. It was also agreed that from the Credit proceeds, SDR 7,040,00 and SDR 3,520,000 were to be allocated to the Federation and RS respectively. The unallocated amount would be allocated as follows: two thirds for the Federation and one third for RS.

Disbursements. Disbursements from the IDA Credit will be based on traditional disbursement methods (i.e., from the Special Account with reimbursements made based on SOEs and full documentation, and direct payments from the Credit Account). The proceeds of the World Bank Credit will be allocated in accordance with Table C, Annex 6. To facilitate timely project implementation, the Government will establish, maintain and operate, under terms and conditions acceptable to the Bank, one separate Special Account denominated in Euro for the PMU. Before a bank is selected to hold the Special Account (with two sub-accounts for the Federation and the RS, respectively), the Borrower shall provide sufficient information for IDA to make an assessment of the true diligence of the Bank in question.

D. Project Rationale

1. Project alternatives considered and reasons for rejection:

Phased approach. As opposed to proceeding with implementing a Nationwide Master Plan and because of limited available funding, the Government has chosen to implement its waste management strategy gradually in three phases (see Section B.2). The first phase will concentrate on rehabilitation of existing dumpsites to serve as regional sanitary landfills, efficient collection and safer disposal, prevention of wild dumps, improved municipal financial management practices, and involvement of the private sector. The second phase will be planned separately under the institutional strengthening component of the project. The practical experience gained with this project would serve as input for the further development of the waste management strategy and be reflected in the future Business plan.

Municipal solid waste vs. other wastes. In line with the phased approach, the Government strategy in the initial phase will concentrate on municipal solid waste (including domestic refuse and industrial, commercial and institutional wastes of similar characteristics only). Other industrial wastes will need to be managed and disposed by the waste generator under Entity and Cantonal regulations. Hazardous wastes require special management capacity that must be built up in the private sector by licensed operators under Entity and Cantonal environmental regulations. Clinical wastes should be managed at the Entity and Cantonal level through specialized, licensed private sector operators, although as a stopgap measure it is feasible to include a small, isolated and specially managed cell to receive clinical wastes at the regional landfill sites. Construction and demolition debris is voluminous and should not be mixed with municipal wastes; it can be processed and recycled as construction material, roadbed material, and possibly landfill cover material or aggregate for leachate and landfill gas drains.

Multi-municipal (regional) landfills vs. smaller sanitary landfills. Formation of multi-municipal landfills through cooperation between different numerous municipalities is necessary for BiH to afford improved sanitary landfill standards. Economies of scale dictate that the costs of maintaining more and smaller sanitary landfills according to the same standards per single municipality would result in much higher costs that cannot be sustained in the current fiscal situation, and would not be cost-effective in any case. Sanitary landfills are affordable and cost-effective only when daily waste input rates are in excess of 200-300 tons per day.
Resource recovery and recycling. Numerous ways are available to undertake resource recovery and recycling, but rarely will such activities produce sufficient revenues to do more than defray some of the associated costs for separation, collection, treatment, and marketing. Furthermore, market development often depends upon incentives provided by governments (tax breaks, special credits, procurement specifications, etc.). At this stage, however, few markets for recycled products exist in BiH. Thus, recycling initiatives can be considered for inclusion in the project scope only if there is solid evidence of a long-term market potential, including customers that are willing and able to pay. To introduce resource recovery and recycling on a larger scale in the medium- and long-term, in this phase the Government should promote pilot activities to test and develop markets. For example, to introduce composting of biodegradable municipal wastes on a large scale, pilot activities should determine the agricultural and landscape demand for compost, the necessary compost quality, waste streams suitable for composting (e.g., green wastes, food wastes, market wastes), low-cost technologies for producing compost of the desired quality, and the cost to municipalities of composting operations (net of potential sales). Similarly, to introduce source separation schemes for the recovery of secondary materials such as paper, glass, plastics, and metals, these should be tested in neighborhoods of different socio-economic characteristics to determine household participation rates, the quantities and value of recovered materials, the costs of separate collection, warehousing and processing, and the design and costs of educational and promotional campaigns needed to implement full-scale programs. Only then can realistic recycling targets and timeframes be established.

Private sector participation models. Sufficient experience now exists in BiH to favor service contracts as the preferred private sector participation model for waste collection. In this case, waste collection districts can be bid out competitively at a minimum size of 50,000 tons (about four collection vehicles needed). The municipality contracts out with private operators, and pays an agreed unit price on the basis of tons of waste collected and delivered to transfer stations or regional landfills. The operator provides and maintains its own fleet of vehicles. User fees are collected by the municipality to pay the operator. Franchising of collection districts (where a private operator has exclusive collection rights and charges households directly) does not work well where anti-dumping regulations cannot be rigorously enforced e.g. observed household participation rates in Latin American Countries (LAC) are only on the order of 60-70%. Open competition (where collection companies compete for household contracts along the same street routes) is inefficient because of loss of economies of contiguity, and low household participation rates.

For transfer and disposal operations, service contracts work well with the public Entity remaining as the investor and owner of assets. Successful design, build, operate (DBO) schemes have been observed, where the operator has a long-term commitment, but investments are made by the public Entity. Full privatization of landfills, as is observed in the United States and some European countries, has not been successful in transition and Part II countries due to the reluctance of private operators to invest in such limited recourse schemes. There is insufficient confidence that municipalities and private waste generators will bring their wastes and pay the required tipping fees over many years, especially when there is lax enforcement of environmental regulations and widespread open dumping.
2. Major related projects financed by the Bank and/or other development agencies (completed, ongoing and planned).

<table>
<thead>
<tr>
<th>Sector Issue</th>
<th>Project</th>
<th>Latest Supervision (PSR) Ratings</th>
<th>Implementation Progress (IP)</th>
<th>Development Objective (DO)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bank-financed</strong></td>
<td><strong>Bosnia and Herzegovina</strong> Mostar Water Supply and Sanitation Project</td>
<td><strong>IP/DO</strong> Ratings: HS (Highly Satisfactory), S (Satisfactory), U (Unsatisfactory), HU (Highly Unsatisfactory)</td>
<td>S</td>
<td>S</td>
</tr>
<tr>
<td><strong>Bank-financed</strong></td>
<td><strong>Bosnia and Herzegovina</strong> Sanitation and Solid Waste Urgent Works Project</td>
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<tr>
<td><strong>Bank-financed</strong></td>
<td><strong>Bosnia and Herzegovina</strong> Pilot Cultural Heritage Project</td>
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<tr>
<td><strong>Bank-financed</strong></td>
<td><strong>Bosnia and Herzegovina</strong> Local Development Project Community Development Project</td>
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<tr>
<td><strong>Bank-financed</strong></td>
<td><strong>Bosnia and Herzegovina</strong> Local Initiatives Project</td>
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<tr>
<td><strong>Bank-financed</strong></td>
<td><strong>Bosnia and Herzegovina</strong> Water, Sanitation and Solid Waste Urgent Works Project (closed and rated S by both ICR and Operation and Evaluation Unit)</td>
<td></td>
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</tr>
<tr>
<td><strong>Other development agencies</strong></td>
<td><strong>European Union</strong> Nationwide Solid Waste Management Strategy</td>
<td></td>
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<tr>
<td><strong>Other development agencies</strong></td>
<td><strong>USAID</strong> Water Supply, Solid Waste Flood Control and Sanitation Projects throughout the Federation Cost Recovery Training Seminars</td>
<td></td>
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</tr>
<tr>
<td><strong>Other development agencies</strong></td>
<td><strong>Norway</strong> Bijelo Piolo Project</td>
<td></td>
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<tr>
<td><strong>Other development agencies</strong></td>
<td><strong>Japan</strong> Municipal Transport</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Other development agencies</strong></td>
<td><strong>EPTISA/Madrid</strong> Human Resources Project Aspects (national)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Other development agencies</strong></td>
<td><strong>EC Phare Program</strong> Institutional Strengthening of the Water Sector</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3. Lessons learned and reflected in the project design:

The Bosnia-Water, Sanitation and Solid Waste Urgent Works project (IF-24032-BA of $20 million; 1996) was the first IDA-financed water project initiated after the war. It provided assistance to municipalities for urgent works and training, equipment and materials, and technical assistance. The project was implemented so effectively that it closed six months before the anticipated closing date despite the difficulties of the post-war situation. Its success was due to several factors: a high level of commitment created by involving clients from the Utilities, municipalities and State levels closely in the conceptualization and definition of project interventions; the technical and management capacity of the executing agencies involved; limited sector development agreements; and an enormous effort by the Bank to guide and facilitate project preparation and implementation. Limited resources were allocated to solid waste improvements due to the priority to address water supply shortages and war damages.

The Mostar Water Supply and Sanitation project (Credit 3400 - BA of $12 million; 2000) is the second IDA-financed water and sanitation project. Lessons learned from the successful preparation of the Mostar project and its ongoing implementation will assist in decision making throughout the project cycle. The political/multi-ethnic issues in Mostar will inevitably arise again on a national level when different municipalities are asked to work together on multi-municipal waste management sites. Sector development objectives related to success of a regional solution, institutional strengthening and cost recovery will be as ambitious as under the Mostar Water project.

Elsewhere, the Bank's experience with solid waste projects (see section B.2) has demonstrated the importance of adopting an integrated strategic planning framework at the national and local levels, better institutional arrangements for multi-municipal cooperation, more efficient operational management through private sector involvement, more effective cost recovery and financial management, and greater attention to improving environmental protection.

A highly relevant Bank project is that of the Mexico Municipal Solid Waste Management I, which financed the creation of the Monterrey Metropolitan Waste Processing and Disposal System (SIMEPRODE), together with the strengthening of the national environmental authority responsible for solid waste management policy and regulation. Created in 1987, SIMEPRODE is a public company that serves eight participating municipalities, operates three transfer stations and 28 transfer vehicles, a regional sanitary landfill, and weighbridges at all transfer stations and the landfill for commercial control. It has a board of directors made up of the State Governor, three of the eight mayors on a rotating basis, and representatives from industry and the unions.

Tipping fees, which are proposed by SIMEPRODE and approved by the board of directors, are set to finance all debt and operations. In recent years, SIMEPRODE has added a mixed waste recycling facility at the landfill, and has opened the landfill to receive waste from any other municipality in the state for the established tipping fee. Currently, with the aid of a GEF grant, it is installing a landfill gas recovery and energy production system through a private concession. The Mexico project confirms the viability of the multi-municipal disposal district model proposed in this project, and demonstrates the importance of the political will to cooperate, establishing an environment conducive to self-financing and commercial behavior, and bringing in the private sector for specialized operations.

The lessons learned from the two BiH projects and from overall Bank experience with projects and reflected in the proposed project design are notably the importance of:
• Creating client ownership by all levels of Government in preparing the project in close collaboration and implementation with the local stakeholders. Total commitment from the Entity, Cantonal and municipal governments is necessary to ensure that preparation and implementation proceeds smoothly;

• Establishing a strong institutional framework to ensure that the project is sustainable. The Draft Waste Management Law sets out a clear definition of sector responsibilities and processes, and this project adds the multi-municipal district mechanism for disposal operations;

• Strengthening cost recovery and financial management as necessary steps toward eventual self-financing at the local and regional level. The project sets realistic and prudent financial improvement targets in the short-term and includes a business planning process for the medium-term achievement of self-financing;

• Creating greater opportunity for private sector participation through corporatization of the Communal Enterprises and introduction of competition with private operators. The project establishes clear functional distinctions between regulatory, client, and operator roles; and

• Improving environmental management through the introduction of affordable, cost-effective disposal technologies, as a first step toward achieving international standards in the long-term.

4. Indications of borrower commitment and ownership:

The participatory approach utilized during project preparation has laid the foundation for direct participation by primary stakeholders in the project implementation process. The Social Assessment involved direct consultations with households in areas targeted by the project, heads of industry and local community groups. Additionally, during project preparation, the project team worked closely with HercegBosnia, Herzegovina Neretva and Tuzla Cantons, and each has submitted Memoranda of Agreement to participate directly in the project. The institutional strengthening component of the project will work directly with local media, community groups and regional and local government Entities to work collaboratively to inform and educate the public on the need to improve the solid waste management service system and to change practices of wild dumping. A Communications Strategy has been designed and details the methods for involving these groups in the implementation of the public information and education campaigns.

5. Value added of Bank support in this project:

• The Bank's primary advantage is that it has the stature and reputation in BiH as being capable of preparing and implementing difficult projects with major associated policy/strategy issues. The Bank would serve as an honest broker to support the sharing of multi-municipal landfill sites through the on-going studies involving full participation of both Cantons and Municipal officials, workshops (already held in Tesanj and Mostar) and continuous dialogue with the various municipalities. Also, Bank involvement raises the stakes for any possible backtracking on commitments.

• The Bank will serve as a catalyst for securing other donor financing for well-coordinated, high-priority and economically and financially justified, investments.
Through Bank involvement, a sound financial management system will be set up. Accounts will be audited annually in accordance with international auditing standards. Furthermore, procurement of goods and services in accordance with the Bank's procurement guidelines will help minimize the cost of equipment purchase and installation.

E. Summary Project Analysis (Detailed assessments are in the project file, see Annex 8)

1. Economic (see Annex 4):
   - Cost benefit: NPV=US$ million; ERR = % (see Annex 4)
   - Cost effectiveness
   - Other (specify)

During project appraisal, customary economic cost-benefit analysis was attempted on the basis of annual flows of economic benefits and costs, derived from the financial revenue and costs contained in the financial cash flow analysis. Available data did not permit a rigorous cost-benefit analysis. The method of charging for waste collection is on the basis of per capita of persons benefiting or on the basis of area of the properties served. Such a billing method creates difficulties for the economic-cost benefit analysis because consumers cannot signal their incremental satisfaction with the incremental amounts of waste collected and the more sanitary disposal in landfills on which the project justification rests. The relative novelty of the project type in Bosnia-Herzegovina means that cost estimates are fragmentary and reduce the reliability of projections.

Still, cost effectiveness analysis of the investments under the project was feasible. It assumes that the respective project beneficiary populations require sanitary collection and disposal of the waste generated in order to safeguard their health and the environment. It then analyzes per capita investments to confirm that investments are efficiently sized to meet the demand for solid waste collection and disposal services. The per capita investment costs for the project cities range from $13.83 - $30.00.

The project has been designed to meet demand at the least possible cost. The above per capita investment costs should be weighed against the benefits of reduction in environmental damage and in public health hazard. Some of these are captured through the solid waste management fees that consumers pay although consumers are likely to underestimate the full environmental and health benefits. In addition, intangible aesthetic benefits arise from having cleaner cities and surrounding areas, through the reduction of uncontrolled dumping.

2. Financial (see Annex 4 and Annex 5):
   - NPV=US$ million; FRR = 3.3 % (see Annex 4)

The projects are located in Tuzla, Banja Luka and Mostar. For Banja Luka, the existing Utility, which presently is responsible for municipal services including solid waste, will manage the proposed landfill. In the case of Tuzla and Mostar, new Utilities will be established to operate the landfills. In preparing financial projections, it was assumed that the landfill operation will operate on a break-even basis. Adding the landfill operation to the existing Utility operation in Banja Luka will require an increase in revenue of about 5%.

Tuzla

JKP Komunalac, which is 51% owned by the state and 49% by the Z Fund is responsible for public hygiene and solid waste services. It is proposed to establish a new organization to manage landfill facilities. Project costs are estimated at 12.0 KM of which 8.6 million KM is for civil works on the landfill. Based on the financial projections, a tariff of 16.5 KM per MT of solid waste in 2008 will cover landfill
operating costs. The operating cost at project completion mainly consists of depreciation which represents about 65% of operating costs.

**Banja Luka**

JKP Cistoca is 70% owned by the municipality and 30% by private investors. It is responsible for solid waste collection and public hygiene and serves a population of about 250,000. Its revenue in 2001 totaled 6.4 million KM, 51% from public hygiene, 30% from household solid waste, 18% from industrial solid waste and 1% from landfill operations. Operating cost totaled 5.9 million KM, with labor cost representing about 37% of total. The operating ratio was 93% giving a net income after taxes of 328,000 KM in 2001.

The proposed project investment is estimated at 7.40 million KM, of which 4.00 million KM is for civil works on the landfill. The landfill operation is projected to have a marginal effect on the financial operation of the Utility with revenue and expenditure estimated at about 5% of the total. At project completion in 2007, landfill costs are estimated at about 2.0 KM per MT of solid waste.

**Mostar**

Two Utilities are responsible for solid waste collection and disposal in Mostar. It is proposed to establish a new organization to manage the regional waste facility at Uborak and for the two existing Utilities to continue their role of solid waste collection and delivery. The proposed project investment is estimated at 3.4 million KM and will be extended on the installation of a leachate system at the regional dumpsite and for the cleaning up of wild dumpsites.

Operating cost is projected to reach about 0.6 million KM at the completion of the project in 2007. This is equivalent to about 18.0 KM per MT of solid waste.

**Fiscal Impact:**

The fiscal impact of the project on local and central governments will be positive. The entire Government counterpart funding is about US$ 3.0 million; the incremental tax revenue will be from limited tax surcharges on the investment cost plus the social tax of 95% on the unskilled labor cost, which comprises part of the incremental operating costs. The latter will grow with the expanded coverage of collections services. On balance, there will be a benefit to the net fiscal effect of the project during the grace period of the IDA credit.

**3. Technical:**

The project envisages the rehabilitation disposal sites only, including upgrading infrastructure and developing of the landfill cells. Wild dump closures will take place in all areas adjoining the landfills under rehabilitation. Equipment and civil works will be provided for the permanent closure of wild dumpsites in an environmentally sound way with long-term environment monitoring. Industrial and clinical waste will be disposed of separately from household waste. Hospital waste will be disposed of in specially designed, secure cells in planned landfills, the construction and operation of which will be financed under this project. The project would finance separate containers and vehicles so that waste can be transported from the source separately from other wastes and disposed of in separate chambers at the sites. Collection infrastructure and support equipment will be provided to enhance the existing waste transport scheme. The project would also finance a limited number of low cost-transfer stations to handle residential, commercial and industrial waste for consolidation at regional landfill sites.
A special program under the Business Plan will evaluate the technical and financial feasibility of composting and recycling (including markets, quantities required, and prices) to control scavenging at disposal sites, and to determine the most appropriate means, if any, of incorporating scavengers into the formal solid waste sector.

4. Institutional:

The Utility in each region included in the project will be responsible for managing a regional site. The Utility managing the regional site will also be the borrower of the credit and responsible for repayment of the debt service. A Regional Board has been established composed of representatives from the Cantonal Ministry (applicable in the Federation) and participating municipalities. The Charter of the Regional Boards has been drafted to negotiate a binding agreement between participating municipalities sharing a regional landfill site. The exact nature of the Charter varies among local circumstances and legal systems, but at a minimum, each specifies: the composition and duties of the Board of Directors; voting mechanism for joint decision making; and the cost sharing agreement and payment mechanism for tipping fee and forms of compensation for the landfill host community.

4.1 Executing agencies:

The proposed project would be implemented during FY 2003-2007 under the overall responsibility of the PMU. Even though the PMU does not have extensive experience in Bank-financed projects, a procurement specialist has been hired and Project Implementing Plan to strengthen capacity has been agreed upon.

4.2 Project management:

The proposed project is a single operation for both Entities under the overall management of the PMU. PMU, as the implementing agency in coordination with the PITs will be responsible for managing, contracting, and expenditures under the project and coordinating project activities. The PMU will operate under the Ministry of Physical Planning and Environment in the Federation and the Ministry of Urban Housing, Civil Engineering and Environment in RS.

4.3 Procurement issues:

The PMU will have primary responsibility for procurement. A Procurement Officer has been appointed with Bank approval to carry out the procurement functions under the project. The PITs will be assisted by consultants familiar with Bank procurement guidelines who will assist with preparation of procurement packages. The procurement capacity should be strengthened by additional training of the designated procurement persons. In addition, training in Bank procurement procedures will be provided through a workshop during the project launch mission, planned for September, 2002.

4.4 Financial management issues:

(see Annex 6b for Financial Management Assessment Report)

Financial Management Assessment Conclusion. BiH is an emerging post-conflict country with weak public financial management capacities and highly perceived levels of institutional corruption. The project is to be implemented under the overall responsibility of the Ministry of Physical Planning and Environment in the Federation and the Ministry of Urban Housing, Civil Engineering and Environment in the Republika Srpska. A Project Management Unit (PMU) has been established in the Federation for overall coordination and implementation, including procurement and financial management aspects, of the project. A review to determine whether the financial management arrangements within the PMU are acceptable to the Bank was undertaken in April 2002. Detailed financial management assessment questionnaires and supporting documents are included in the project files. Based on the April assessment of the financial management
system and processes, and the assessment of risks and mitigation measures, it is concluded that the PMU satisfies the Bank’s minimum financial management requirements.

**Audit Arrangements.** The audit would include both a project audit, and audit of the Utilities as beneficiaries of the project. The project audit would include a separate opinion by the auditor on the operation of the Special Account. The Ministry of Treasury of Institutions (MOT) of BiH has recently renewed a 3-year contract (2001-2003) with Price Waterhouse Coopers, Netherlands for the audits of World Bank financed projects. The project will be included on the list of projects audited under the master audit agreement with Price Waterhouse Coopers, Netherlands. The Utilities would be subject to an annual independent, external audit, in accordance with international accounting and auditing standards. This audit would be carried out by an independent auditor acceptable to the World Bank, and the audit report would be sent to the Bank within 6 months of the end of the fiscal year. It is expected that the cost of the audit will be financed from the credit and counterpart funds.

**Financial Reporting.** PMU will submit quarterly financial monitoring reports (FMRs) for the project in accordance with formats agreed on with the Bank, as well as financial statements for the Utilities. The FMRs will include the following: (a) Financial Report; (b) Project Progress Report; and (c) Procurement Management Report. These financial reports will be submitted to the Bank within 45 days of the end of each quarter. The first quarterly FMR will be submitted at the end of the first quarter in which disbursements commence, probably around February 15, 2003.

**Financial Risks.** From a financial management perspective, the project is considered a high-risk operation for the following reasons: (a) the financial viability of the Utilities (including two new Utilities); (b) low financial management capacity and accountability in the public sector; (c) public perceptions of corruption in BiH; (d) weak albeit recently strengthened banking sector; and (e) lack of timely and adequate counterpart funds. These risks are considered as manageable due to the various risk-mitigation measures taken. (See Annex 6b for full description of risk mitigation measures).

5. Environmental: Environmental Category: B (Partial Assessment)

5.1 Summarize the steps undertaken for environmental assessment and EMP preparation (including consultation and disclosure) and the significant issues and their treatment emerging from this analysis.

The project is expected to generate positive environmental benefits by improving collection, transfer, and disposal of solid waste, and reducing illegal dumping in environmentally sensitive areas. Project financed activities will reduce environmental degradation related to inadequate solid waste management through (a) improved waste collection which would lessen the quantity of uncollected waste; (b) improved collection methods, landfill design and management practices which would separate municipal wastes from medical wastes and provide for the separate, and proper disposal of each, as well as prevent leachate and other emissions from contaminating the environment; and (c) closure of illegal dumps which will eliminate the possibility of future contamination and health hazards.

Potential negative environmental impacts associated with solid waste management include contamination of soil and air quality. Pollution of ground and surface waters is a particular concern in waste management. These impacts would be associated with construction; collection, transfer and storage; operation of the landfill; leachate and gas emissions from landfills and transfer stations; and decommissioning of the landfills. More indirect impacts are related to the aesthetic properties of landfills, particularly wild dumpsites, which include odors and unsightliness. These impacts are a nuisance to the local population and may hinder economic development in the immediate vicinity of the dumps.
The feasibility study and EA for each landfill site proposed for the project included a hydrogeological description of the site; examination of environmental quality data on and around the proposed landfill; and assessment of existing and potential negative environmental impacts. Landfills proposed for inclusion in the project were reviewed in the EAs in terms of potential for water, soil and air pollution, with a particular focus on water quality. Currently, environmental authorities and available data do not indicate that the ground or surface water is contaminated by the leachate at any of the landfills intended for rehabilitation. The EAs also included characterization and quantification of the wastes in the landfills; current and future wastes to be disposed of in the landfill; assessment of the life of the landfill; and decommissioning timeframe. The landfills selected for inclusion in the project were those deemed to be environmentally sound, and/or amenable to low-cost rehabilitation to mitigate negative environmental impacts. Environmentally sound site locations were a criteria for inclusion into the project. Improper landfill siting is not a consideration as no new construction is planned. The engineering studies of each site, to be conducted under project implementation, will include further evaluation of existing or potential negative environmental impacts and design of remediation/mitigation measures. Environmental quality measurements will be included in the engineering studies of each landfill and provide a baseline against which to monitor the performance of the rehabilitated landfills.

The EAs also included inventories of the illegal dumpsites in the vicinity of each landfill proposed for the project, and identified existing or potential negative environmental impacts. These findings will be used to select those illegal dumps most in need of closing, under the project.

5.2 What are the main features of the EMP and are they adequate?

The EMP provides detailed descriptions of the landfills to be included in the project and the illegal dumps in their vicinity; existing and potential environmental impacts of each landfill; mitigation measures; and a monitoring program. The EMP describes the institutional roles and responsibilities, and costs, for monitoring, reporting, and enforcement. The EMP provides an assessment of the institutional arrangements for monitoring and describes the environmental training program to be financed by the project.

The project will significantly contribute to improved environmental quality monitoring. Environmental monitoring is considered an important activity under the project. A sub-component, which will finance monitoring programs, equipment, services and training has been designed to ensure that the program outlined in the EMP is successfully implemented. The environmental monitoring conducted as part of the engineering design studies will confirm existing conditions and serve as a baseline. The project will put into place a rigorous environmental monitoring program, as described in the EMP. The monitoring program will be based on the recommendations in the National Solid Waste Management Strategy. The parameters to be monitored are:

- Leachate quality on site
- Groundwater quality in surrounding and downstream areas
- Surface water quality in surrounding and downstream areas
- Soil quality in surrounding areas
- Gas emissions from the site
- Incinerator emissions
- Weight of the waste
- Composition of the waste
- Disposal suitability of the waste (Hazardous waste)
- Construction activities
- After decommissioning monitoring
The environmental monitoring sub-component will also finance training on solid waste management issues including monitoring and regulation; selection of appropriate collection equipment; development of collection equipment specification; planning efficient route designs; financial management and cost recovery; resource recovery and recycling; special handling of hazardous and medical wastes; and landfill operations.

For those project regions/landfills that will be determined during project implementation, the same analysis as that used in the EAs conducted as part of project preparation will be followed, and the EMP applied. The project implementing team will be responsible for conducting these activities.

5.3 For Category A and B projects, timeline and status of EA:

Date of receipt of final draft: September 2001

The EA was finalized February 14, 2002, and submitted to the Bank.

5.4 How have stakeholders been consulted at the stage of (a) environmental screening and (b) draft EA report on the environmental impacts and proposed environment management plan? Describe mechanisms of consultation that were used and which groups were consulted?

During project preparation, stakeholders, including local and national NGOs, were involved in workshops, local level community meetings, and public consultations. The key stakeholders are the citizens of the regions to be serviced by the project's rehabilitated engineered landfills. The project includes a sub-component on "Community Participation and Public Education" that will foster communication between the communities and the solid waste management authorities. The EA for each project regional landfill and the EMP have been discussed during project preparation stakeholder workshops, and each region has conducted a public discussion of the EA. The EA and EMP have been publicly disclosed.

5.5 What mechanisms have been established to monitor and evaluate the impact of the project on the environment? Do the indicators reflect the objectives and results of the EMP?

Results of the environmental monitoring program, to be financed by the project, will establish a baseline of environmental parameters and track impacts, negative and positive, over the course of the project.

6. Social:

6.1 Summarize key social issues relevant to the project objectives, and specify the project's social development outcomes.

The social issues relating to the project have been identified based on a comprehensive Social Assessment conducted as part of project preparation and involving household surveys and focus group interviews in the Cantons of Tuzla and Livno-Herzeg-Bosnia and the City of Mostar, some of the geographic areas targeted by the project. Social issues include behavioral obstacles to the use of new and improved sites and services, a lack of public awareness and social consensus on the need for systemic improvements in solid waste management services and a lack of trust in the institutions that to date have been responsible for managing of the current system. While environmental issues rate highly among residents of the areas targeted by the project, especially residents of Tuzla, the current economic situation is of more immediate concern.

To address residents immediate concerns, the project will focus on improving solid waste management services and the clean up of wild dumpsites in Mostar, Tuzla and Banja Luka. Service improvements will
include the rehabilitation of regional landfill sites in each of the targeted areas, provision of additional waste containers to residents, provision of modern collection equipment, and an increase in the frequency of collection services. The project will also clean up the major wild dumpsites that create much of the negative environmental impacts that are of most concern to residents in these areas. The negative environmental effects most frequently cited by residents include unpleasant odor, smoke from the burning of waste at wild dumpsites and landfills, air pollution, illnesses including allergies and upper respiratory problems, and the close proximity to water sources.

Residents of areas not currently serviced by garbage collection services and areas closest to existing landfills/wild dumpsites will benefit most from the project. Existing landfills will be rehabilitated and wild dumpsites cleaned up and closed, thereby decreasing negative environmental effects that are of most importance to residents in close proximity to these sites. Additionally, residents living closest to the current landfills are currently less likely to have access to garbage collection services, they will benefit from the regular provision of these services. Residents currently receiving these services will benefit from overall improvements in these services. Additionally, the clean up of wild dumpsites will benefit most of the target populations, as an average of 60% of respondents in target areas stated that at least one wild dumpsite was located close to their home (within 3 KM distance).

Through its institutional strengthening component, the project will support community outreach activities needed for proper functioning of the overall solid waste management system. These activities include education and public awareness campaigns on solid waste issues such as the need for public cleanliness, adequate collection and disposal of household refuse, and health and environmental problems caused by inadequate disposal of wastes in creeks, beaches, roadsides etc. This component includes information on the project, as well as public consultations during project implementation. Additionally, because the limited and unreliable levels of solid waste collection services does not motivate the general population to pay associated fees, the communication strategy will also promote a change of attitude from local residents with respect to payment of service fees.

Social development outcomes of the project include: improved capacity of the solid waste management system to provide high quality and financially viable services, increased public awareness of the need to cease wild dumping practices and of the importance of a sustainable solid waste management system, increased capacity of local communities to implement environmental information programs, improved public health in targeted areas with the closure and clean-up of wild dumpsites, and improved environment in targeted areas.

6.2 Participatory Approach: How are key stakeholders participating in the project?

The participatory approach utilized during project preparation has laid the foundation for primary stakeholders to participate directly in the project implementation process. The Social Assessment involved direct consultations with households in areas targeted by the project, heads of industry and local community groups. Additionally, during project preparation, the project team worked closely with Tuzla, HercegBosnia and Herzegovina Neretva Cantons as well as Banja Luka region, and each has submitted memoranda of agreement to participate directly in the project. The institutional strengthening component of the project will work directly with local media, community groups and regional and local Government Entities to collaborate on informing and educating the public on the need to improve the solid waste management service system and to change practices of wild dumping. A Communications Strategy has been designed that details the methods for involving these groups in the implementation of the public information and education campaigns.
6.3 How does the project involve consultations or collaboration with NGOs or other civil society organizations?

The project will seek the participation of local community organizations and rural district organizations, and possibly local NGOs in the communication program. Because numerous environmental NGOs are active in the areas where the project operates, the project could contract local NGOs for the implementation at the local level of some aspects of the communication activities. The communication activities at the local level will include variety of print and broadcast media initiatives, and other means such as schools, religious institutions and health clinics. Working directly with the local NGOs will further enhance the effectiveness of the communication program and the project's outreach, particularly to rural areas in the interior.

6.4 What institutional arrangements have been provided to ensure the project achieves its social development outcomes?

To achieve the above social development outcomes, a comprehensive communication strategy has been designed as an integral part of the project. The strategy is designed to ensure the widest participation of all stakeholders involved in creating a civil society. Through some communication activities, people will be informed about the advantages deriving from the new system and helped feel responsible and contribute to its sustainability. The communication strategy will be structured at different levels, under the overall responsibility of the PIT.

A general countrywide communication program will create awareness about solid waste management and the concept of multi-municipal landfills. The Ministries will play a key role in the program at the state level. Therefore, a major effort will be made to strengthen their communication capacity. At the local level, coordinated regional campaigns will address specific issues in the landfill areas.

6.5 How will the project monitor performance in terms of social development outcomes?

Surveys and opinion research initiatives will track people's opinions related to the project. The project will monitor key behaviors which actively contribute to the project's sustainability. Tracking studies will assess levels of public awareness about the solid waste services and any attitude changes.
7. Safeguard Policies:

7.1 Do any of the following safeguard policies apply to the project?

<table>
<thead>
<tr>
<th>Policy</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Assessment (OP 4.01, BP 4.01, GP 4.01)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Natural Habitats (OP 4.04, BP 4.04, GP 4.04)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Forestry (OP 4.36, GP 4.36)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Pest Management (OP 4.09)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Cultural Property (OPN 11.03)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Indigenous Peoples (OD 4.20)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Involuntary Resettlement (OP/BP 4.12)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Safety of Dams (OP 4.37, BP 4.37)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Projects in International Waters (OP 7.50, BP 7.50, GP 7.50)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Projects in Disputed Areas (OP 7.60, BP 7.60, GP 7.60)*</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

7.2 Describe provisions made by the project to ensure compliance with applicable safeguard policies.

N/A

F. Sustainability and Risks

1. Sustainability:

The sustainability of the project will largely depend on: (a) successfully operating the multi-municipal landfill sites on an autonomous and commercial basis, with full support from all levels of Government; (b) achieving financial viability by gradually increasing revenues to cover adequate operating and maintenance expenditures, the debt service, and a portion of investments; and (c) the long-term impact of the technical assistance component on the efficiency and operations of the sector. The current problems, particularly the lack of adequate cash flow, largely stem from the aftermath of the war. Hence it is critical for the project to educate consumers on the importance of paying for services received and to target funding to least-cost investments only.
2. **Critical Risks** (reflecting the failure of critical assumptions found in the fourth column of Annex 1):

<table>
<thead>
<tr>
<th>Risk</th>
<th>Risk Rating</th>
<th>Risk Mitigation Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>From Outputs to Objective</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack of will of some municipalities to participate in a multi-municipal landfill site in a cooperative manner.</td>
<td>S</td>
<td>Ministries have continuous policy dialogue with the different Cantons and municipalities.</td>
</tr>
<tr>
<td>Public's potential unwillingness to pay for services.</td>
<td>S</td>
<td>Early implementation of communication program to ensure stakeholder involvement and local ownership in project.</td>
</tr>
<tr>
<td>Lack of enforcement and continued wild dumping.</td>
<td>M</td>
<td>High penalties and public awareness activities.</td>
</tr>
<tr>
<td>Limited financial resources.</td>
<td>M</td>
<td>Mix soft credit with donor grants.</td>
</tr>
<tr>
<td>Limited institutional capacity.</td>
<td>S</td>
<td>Training has already begun to assist with institution building.</td>
</tr>
<tr>
<td>Financial viability and sustainability of the four Utilities</td>
<td>S</td>
<td>Introduction of tipping fees and regular monitoring of the Utilities, and where appropriate requesting Utilities to prepare acceptable financial management action plans.</td>
</tr>
<tr>
<td>From Components to Outputs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Limited resource capacity from borrower.</td>
<td>M</td>
<td>Loan conditionality and public awareness campaigns should improve fee collection and hence ensure Borrower contribution.</td>
</tr>
<tr>
<td>Delays in improving services that further frustrate the public.</td>
<td>M</td>
<td>Early training of Utility staff and procurement documentation preparation.</td>
</tr>
</tbody>
</table>

**Overall Risk Rating**

<table>
<thead>
<tr>
<th>Risk Rating - H (High Risk), S (Substantial Risk), M (Modest Risk), N (Negligible or Low Risk)</th>
</tr>
</thead>
</table>

3. **Possible Controversial Aspects:**

Not applicable
G. Main Credit Conditions

1. Effectiveness Condition

(a) A Project Agreement has been executed on behalf of IDA and both Entities, the Federation and the RS on terms and conditions satisfactory to IDA.

(b) A Subsidiary Finance Agreement has been executed on behalf of the Borrower, and both Entities, the Federation and the RS on terms and conditions satisfactory to IDA.

(c) The Inter-Municipal Boards for each regional site should be established and Charter approved by respective Cantons in the Federation and by participating municipalities in the RS.

2. Other [classify according to covenant types used in the Legal Agreements.]

Board Conditions (fulfilled)

(a) The PMU accounting staff completed initial training of the new financial information system.

(b) Complete financial manual for the project completed, acceptable to the Bank.

(c) The PMU's financial management arrangements fulfilled the Bank's minimum requirement for financial management.

Financial Covenants

(a) The Utilities should cover all operating and maintenance costs, including depreciation by 2004. Each Utility should provide financial forecasts by October 31, 2003 and on October 31 of each following year of project implementation to ensure that projected operating revenues are sufficient to meet operating and maintenance expenses for the next fiscal year. If these requirements cannot be met, the Utilities will take all necessary measures, including adjustments of the structure or level of its rates.

(b) The Utilities shall establish, not later than September, 2004, and thereafter maintain, a financial management system, including records and accounts, and prepare financial statements to produce sufficient information for appropriate management, all in accordance with accounting standards acceptable to IDA, consistently applied, adequate to reflect its operations and financial conditions and to register separately the operations, resources and expenditures related to the project.

(c) Ensure that the Utilities do not incur any debt unless a reasonable forecast of the Utilities revenues and expenditures shows that the estimated net revenue of the Utilities for each fiscal year during the term of the debt to be incurred shall be at least 1.3 times the estimated debt service requirements of the Utilities in such year on all debt of the Utility, including the debt to be incurred.
(d) Ensure that the records, accounts and financial statements of the Utilities for each fiscal year are audited, in accordance with appropriate auditing principles consistently applied, by independent auditor's satisfactory to the Borrower and the Bank, and furnish to the Borrower not later than six (6) months after the end of such year certified copies of the financial statements for such year so audited and the report of such audit by the auditors of such scope and such detail as the Borrower and the Bank shall have reasonably requested.

(e) By December 31, 2004, the four Utilities will have their assets revalued based on assessment carried out by qualified independent organization in accordance with term of reference, both acceptable to the Association.

**Environmental Covenant**

Environmental Management Plan (EMP) means the plan, satisfactory to the Bank, prepared and adopted by the Recipient, describing the environmental mitigation, monitoring, and institutional measures under the Project;

**For Disbursement on Specific Components**

Each Utility should prepare an Action Plan on planned investments on expenditures in the following components for those investments not identified in the Procurement Plan. The Action Plan should include a description of the proposed investment, an estimate of project costs and expenses, procurement plan, an economic and financial analysis; and a procurement plan and an analysis of the priority of the proposed investment/expenditure in term of its cost effectiveness and social impact. Upon approval of the Action Plan satisfactory to IDA, disbursements will be authorized for these specific categories.
H. Readiness for Implementation

☐ 1. a) The engineering design documents for the first year's activities are complete and ready for the start of project implementation.
☒ 1. b) Not applicable.

☒ 2. The procurement documents for the first year's activities are complete and ready for the start of project implementation.

☐ 3. The Project Implementation Plan has been appraised and found to be realistic and of satisfactory quality.

☐ 4. The following items are lacking and are discussed under loan conditions (Section G):

I. Compliance with Bank Policies

☒ 1. This project complies with all applicable Bank policies.

☐ 2. The following exceptions to Bank policies are recommended for approval. The project complies with all other applicable Bank policies.

Seema Manghee
Team Leader

Motoo Konishi; Hossein Razavi
Sector Manager/Director

Christiaan J. Poortman
Country Manager/Director
## Annex 1: Project Design Summary

### BOSNIA AND HERZEGOVINA: Solid Waste Management Project

<table>
<thead>
<tr>
<th>Sector-related CAS Goal: Safeguard the environment through better strategic planning and environmental management.</th>
<th>Sector Indicators: Establishment of a long-term solid waste management system for BiH, which is cost-effective, safe and environmentally sound.</th>
<th>Sector/ country reports: Quarterly progress reports. (from Goal to Bank Mission)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Critical Assumptions:</strong> 1. Commitment of Government to environmental management and willingness to ensure necessary funding. 2. Institutional and management capacity to enforce environmental regulations.</td>
<td><strong>Critical Assumptions:</strong> 1. The Client have the operational management capacity to successfully implement the project. 2. Public accepts the need for rehabilitation new waste control strategies</td>
<td></td>
</tr>
</tbody>
</table>

### Project Development Objective: Increase the quality, availability and financial sustainability of solid-waste services in participating areas.

<table>
<thead>
<tr>
<th>Outcome / Impact Indicators:</th>
<th>Project reports:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Multi-municipal waste management districts established by September, 2002. 2. Four of regional landfill sites operational and x transfer stations operating by January, 2004. 3. 20% reduction in the number of wild dumpsites 4. Nearly 60 percent of solid wastes being disposed of in a sanitary landfill or other environmentally sound manner.</td>
<td>1. Supervision reports outlining progress on key indicators, and actions to be taken. 2. Comprehensive project planning for second phase.</td>
</tr>
</tbody>
</table>

#### Project Development

1. Increase administrative and technical capacity for solid waste management at the local and Entity level.

   1. Strengthening of appropriate institutions to manage solid waste services 2. Business plans for future development of waste disposal sites prepared by January, 2004 approved by May, 2004. 3. Education and public awareness campaigns under implementation 6 months after project effectiveness. 4. Nearly 60 percent of solid wastes being disposed of in a sanitary landfill or other environmentally sound manner.

2. Improve the cost recovery

   1. Agreed upon program to
| mechanism of the sector to encourage private sector involvement. | achieve gradual cost-recovery system and timetable for its implementation.
2. Recycling awarded to either foreign or domestic private firms by 2004.
3. At least 75% of population in project areas paying regularly for services by the end of the project.
Wild waste dumps closed and monitoring of groundwater being undertaken regularly. | sectors pay appropriate costs for services.
2. Quarterly progress reports.
3. Facility accounting records.
Final implementation completion report.
Government remains committed to reducing environmental risks of poor disposal practices.

4. Correct environmental problems and reduce health hazards caused by inadequate waste collection and disposal systems.
<table>
<thead>
<tr>
<th>Output from each Component:</th>
<th>Key Performance Indicators:</th>
<th>Data Collection Strategy:</th>
<th>(from Outputs to Objective)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Municipal Solid Waste Management system infrastructure improved (first phase of an integrated solid waste management system).</td>
<td>1. Rehabilitation of four sanitary landfills in Tuzla.</td>
<td>1. Supervision reports outlining progress on key indicators, and actions to be taken.</td>
<td>1. Public accepts the need for new waste control strategies</td>
</tr>
<tr>
<td></td>
<td>3 Acquisition and operation of new collection vehicles.</td>
<td>3. Procurement records.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. 8 of transfer stations operational by December, 2003.</td>
<td>4. Supervision reports.</td>
<td></td>
</tr>
<tr>
<td>B. Institutions operating more efficiently and cost-effectively and with a better understanding of the need to deliver affordable, high quality services.</td>
<td>1. Decisions reached on: (a) private sector involvement, (b) performance monitoring, (c) cost recovery, (d) institutional structure, (e) legal instruments, (f) regulatory framework, (g) cost accounting, and (h) use of management information systems.</td>
<td>1. Supervision reports.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Communication activities carried out.</td>
<td>2. Final implementation completion report.</td>
<td></td>
</tr>
</tbody>
</table>
**Hierarchy of Objectives:**

<table>
<thead>
<tr>
<th>Project Components / Sub-components:</th>
<th>Inputs: (budget for each component)</th>
<th>Project reports:</th>
<th>Critical Assumptions:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Component 1.</strong> Rehabilitate existing and develop new solid waste disposal and collection infrastructure.</td>
<td>15.71</td>
<td>1.1 Quarterly progress reports.</td>
<td>Public education and communication programs are effective in changing behavior of targeted population.</td>
</tr>
<tr>
<td>1.1 Rehabilitation of existing disposal sites.</td>
<td></td>
<td>1.2 Quarterly progress reports.</td>
<td></td>
</tr>
<tr>
<td>1.2 Rehabilitation of existing landfill sites to meet sanitary standards, including upgrading of infrastructure.</td>
<td></td>
<td>1.3 Quarterly progress reports.</td>
<td></td>
</tr>
<tr>
<td>1.3 Close wild dump sites in an environmentally sound way.</td>
<td></td>
<td>1.4 Environmental monitoring system reports.</td>
<td></td>
</tr>
<tr>
<td>1.4 Implement long-term environmental monitoring.</td>
<td></td>
<td>1.5 Procurement records.</td>
<td></td>
</tr>
<tr>
<td>1.5 Finance collection infrastructure and support equipment such as collection bins, support vehicles, and other related equipment.</td>
<td></td>
<td>1.6 Procurement reports</td>
<td></td>
</tr>
<tr>
<td>1.6 Finance a limited number of economical transfer stations handling residential, commercial and institutional waste for consolidation to regional landfill sites.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Component 2.</strong> Institutional Strengthening program implemented.</td>
<td>1.07</td>
<td>2.1 Training curricula, participant questionnaires, media spots, and education campaign surveys.</td>
<td></td>
</tr>
<tr>
<td>2.1 Implement public communication program to include capacity building, public awareness activities, media campaigns, and introduction of environmental subjects in education programs.</td>
<td></td>
<td>2.2 Business Plan document.</td>
<td></td>
</tr>
<tr>
<td>2.3 Provide training in disposal, landfill operations and closure and design of future landfills to develop financial management capacity.</td>
<td>2.3 Training curricula, participant surveys.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.4 Provide project assistance and management support to include financial management, preparation of bidding documents to purchase goods and implementation of works, and hiring of consultants to carry out the various studies under this sub-component.</td>
<td>2.4 Quarterly reports, procurement records.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Component 3: Engineering Services/Technical Assistance**

| 2.78 |
| 3.1 Finance technical assistance for feasibility studies. | 3.1 Consultant reports. |
| 3.2 Conduct financial, environmental and social assessments of landfill sites to be identified. | 3.2 Consultant reports. |
| 3.3 Prepare final designs and bidding documents. | 3.3 Bidding documents. |
| 3.4 Provide support for bidding procedures, investments and services provided under Components 1 and 2. | 3.4 Quarterly reports. |
| 3.5 Finance equipment for operations, including environmental monitoring. | 3.5 Procurement reports |

**Component 4: Project Management Unit (PMU)**

| 0.50 |

**Component 5: Operating Costs**

| 0.94 |
Annex 2: Detailed Project Description

BOSNIA AND HERZEGOVINA: Solid Waste Management Project

By Component:

Project Component 1 - US$15.71 million

Component A. Waste Management Component

a. Rehabilitation of existing disposal sites (US$ 5.49 million): civil works and equipment to meet sanitary standards, including upgrading of infrastructure.

b. Wild Dump Closures (US$5.83 million): equipment and civil works needed to permanently close wild dumpsites in an environmentally sound way and institute long-term environmental monitoring. The goods used for this component would eventually be reassigned to other landfill sites once the closures are complete.

c. Collection Infrastructure and Support Equipment (US$1.75 million): finance equipment such as collection bins, support vehicles, and other related equipment.

d. Transfer Stations (US$2.64 million): finance an optimal number of transfer stations to handle residential, commercial and institutional waste for consolidation to regional landfill sites.

Project Component 2 - US$1.07 million

Component B. Institutional Strengthening

a. Business Plan - Medium Term (US$0.50 million): includes a Government strategic plan for the medium-term development of the SWM system of Bosnia. The plan would address the medium-term approaches and investments required to maintain the SWM system, enforcement and upgrading to international standards. This sub-component would also involve development of financial management capacity for the system to operate on a commercial basis and measures to ultimately privatize as appropriate. This would include training related to disposal, landfill operations and closure and design of future landfill designs.

b. Public Communication Program and Environmental Monitoring (US$0.57 million): build consensus and promote local ownership about the SWM system and the concept of multi municipal landfill; create awareness of the need for safe collection and disposal of household refuse and motivate households and industry to pay for the associated fees. The activities include capacity building, media campaign, community and civil-society outreach customer relations.

Project Component 3 - US$ 2.78 million

Component C: Engineering Services/Technical Assistance

Engineering Services/Technical Assistance. This component will finance technical assistance for required feasibility studies, and the financial, environmental and social assessments of landfill sites. It will also finance preparation of the final designs and bidding documents; and provide support for bidding procedures, for the investments and services provided under Components A and B. Investments would be chosen based on operational priority and cost.
Project Component 4 - US$0.50 million
Component D: Project Management Unit

*Project Management Unit (PMU):* This component will assist with implementation of the project which covers various regions, provides guidance and support to local project Entities and ensures that the Bank's procurement guidelines are observed.

Project Component 5 - US$0.94 million
Component E: Incremental Operating Costs

*Incremental Operating Costs:* This component will assist in implementing of the project to support incremental operating costs incurred by PMU, PITs and Utilities.
Annex 3: Estimated Project Costs
BOSNIA AND HERZEGOVINA: Solid Waste Management Project

<table>
<thead>
<tr>
<th>Project Components</th>
<th>Local US $ million</th>
<th>Foreign US $ million</th>
<th>Total US $ million</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Tuzla</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Works on landfill sites</td>
<td>2.58</td>
<td>1.72</td>
<td>4.30</td>
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<tr>
<td>Goods</td>
<td>0.06</td>
<td>0.54</td>
<td>0.60</td>
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<tr>
<td>Engineering Services</td>
<td>0.20</td>
<td>0.15</td>
<td>0.35</td>
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<tr>
<td>Technical assistance</td>
<td>0.06</td>
<td>0.04</td>
<td>0.10</td>
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<tr>
<td>PA and EM (1)</td>
<td>0.06</td>
<td>0.04</td>
<td>0.10</td>
</tr>
<tr>
<td>Institution strengthening &amp; operating cost</td>
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<td>0.17</td>
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<tr>
<td>Subtotal</td>
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<td>2.86</td>
<td>6.00</td>
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<tr>
<td><strong>B. Banja Luka</strong></td>
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<td></td>
<td></td>
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<tr>
<td>Works on landfill sites</td>
<td>1.43</td>
<td>0.57</td>
<td>2.00</td>
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<tr>
<td>Goods</td>
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<td>0.95</td>
<td>1.00</td>
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<tr>
<td>Engineering services</td>
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<td>0.08</td>
<td>0.20</td>
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<tr>
<td>Technical assistance</td>
<td>0.05</td>
<td>0.04</td>
<td>0.09</td>
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<tr>
<td>PA and EM (1)</td>
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<td>0.04</td>
<td>0.10</td>
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<tr>
<td>Institution strengthening &amp; operating cost</td>
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<td>0.11</td>
<td>0.31</td>
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<td>Subtotal</td>
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<td>1.79</td>
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<td><strong>C. Mostar</strong></td>
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<tr>
<td>Works on landfill sites</td>
<td>0.63</td>
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<tr>
<td>Goods</td>
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<td>0.18</td>
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<td>Engineering services</td>
<td>0.06</td>
<td>0.04</td>
<td>0.10</td>
</tr>
<tr>
<td>PA and EM (1)</td>
<td>0.05</td>
<td>0.02</td>
<td>0.07</td>
</tr>
<tr>
<td>Institution strengthening &amp; operating cost</td>
<td>0.06</td>
<td>0.02</td>
<td>0.08</td>
</tr>
<tr>
<td>Subtotal</td>
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<td>0.68</td>
<td>1.50</td>
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<tr>
<td><strong>D. Bosnia Business Plan</strong></td>
<td>0.10</td>
<td>0.40</td>
<td>0.50</td>
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<td><strong>E. Project Management</strong></td>
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<td>0.15</td>
<td>0.50</td>
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<tr>
<td><strong>F. Unallocated</strong></td>
<td>2.55</td>
<td>2.05</td>
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<td><strong>Total Baseline Cost</strong></td>
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<td>16.80</td>
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<td>Physical Contingencies</td>
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<td>2.70</td>
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<td>Price Contingencies</td>
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<td>0.60</td>
<td>1.50</td>
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<td><strong>Total Project Cost</strong></td>
<td>11.22</td>
<td>9.78</td>
<td>21.00</td>
</tr>
</tbody>
</table>

(1) Public Awareness and Environmental Monitoring
Summary of benefits and costs:

The economic analysis has attempted to register the costs and benefits of each of these four project objectives to the extent this will be possible. In particular, the economic cost/benefit analysis attempted to quantify:

- The total generation of solid waste and the increasing percentage collected and properly disposed of in sanitary landfills. Currently, only about 60% of the areas in larger municipalities are covered by collection services and the percentage is much lower in more rural municipalities. The incremental project benefits could not fully identify these benefits as solid waste management fees vary with total tonnage collected and adequately disposed of in the sanitary landfills that the project will rehabilitate and operate.

- Improved solid waste management practices and in particular the establishment and operation of the sanitary landfills will enable higher solid waste collection and disposal fees to be levied. Currently, households and industries are charged on the basis of square meters of buildings and not on the basis of waste generated because weighing of waste generated and collected is considered to be too capital intensive given the scarcity of capital in Bosnia-Herzegovina.

- The collections percentage of billings is expected to rise under the project from current levels which range from 35% (Mostar) to 78% (Tuzla);

- The higher percentage of total tonnage disposed of in sanitary landfills will reduce environmental damage and public health hazards. Without the project, only a portion of total tonnage of solid waste produced ends up in sanitary landfills.

During project appraisal, it proved impossible to undertake a full economic cost-benefit analysis for a number of reasons. The method of charging for waste collection is on the basis of per capita of persons benefiting or on the basis of area of the properties served. Such a billing method creates difficulties for the economic cost-benefit analysis since consumers cannot signal their incremental satisfaction with the incremental amounts of waste collected and the more sanitary disposal in landfills on which the project justification rests. The relative novelty of the project type in Bosnia-Herzegovina means that cost estimates are fragmentary and reduce the reliability of projections.

Cost-effectiveness analysis of the investments under the project is however feasible. It assumes that the respective project beneficiary populations require sanitary collection and disposal of the waste generated to safeguard their health and the environment. It then analyzes per capita investments to confirm that investments are efficiently sized to meet the demand for solid waste collection and disposal services. The table below details the per capita investment costs in the four project cities:
Main Assumptions:

The project has been designed to meet demand at the least possible cost. Operations are labor-intensive to take advantage of the relatively low market rates for unskilled labor of about KM 640 per month - including social taxes of 95% of wage costs which should not be included in the economic analysis. Four man crews collect waste using simple trucks. Collected waste is then transported to the sanitary landfill sites that are shared by several cities to take advantage of the substantial economies of scale and to reduce environmental risks. The landfills have been rehabilitated with relatively short design periods in order to fit the natural conditions in each site and to minimize the environmental disruptions. Two of the landfills (Banja Luka and Mostar) will be designed to meet demand during periods ranging from 5 to 10 years whereas the Tuzla landfill is designed to meet demand during 20 years. Each landfill will minimize the use of expensive equipment to reduce to a minimum investment costs and concomitant operating costs.

Cost-effectiveness indicators:

The above per capita investment costs should be weighed against the indicators that comprise reduction in environmental damage and in public health hazard. Some of these are captured through the solid waste management fees that consumers pay although consumers are likely to underestimate the full environmental and health benefits. In addition, there are the intangible esthetic benefits from having cleaner cities and surrounding areas, through the reduction of uncontrolled dumping.

<table>
<thead>
<tr>
<th>Project City</th>
<th>Population</th>
<th>Project Investments</th>
<th>Per Capita Investment, $</th>
</tr>
</thead>
<tbody>
<tr>
<td>Banja-Luka</td>
<td>180,000</td>
<td>3,700,000</td>
<td>13.83</td>
</tr>
<tr>
<td>Mostar</td>
<td>120,000</td>
<td>1,500,000</td>
<td>12.50</td>
</tr>
<tr>
<td>Tuzla</td>
<td>200,000</td>
<td>6,000,000</td>
<td>30.00</td>
</tr>
</tbody>
</table>
## Annex 5: Financial Summary

**BOSNIA AND HERZEGOVINA: Solid Waste Management Project**

**Years Ending 2007**

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Year 6</th>
<th>Year 7</th>
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</thead>
<tbody>
<tr>
<td><strong>Total Financing Required</strong></td>
<td>3.1</td>
<td>6.3</td>
<td>7.3</td>
<td>3.2</td>
<td>1.1</td>
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<tr>
<td><strong>Project Costs</strong></td>
<td>3.1</td>
<td>6.3</td>
<td>7.3</td>
<td>3.2</td>
<td>1.1</td>
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<td><strong>Investment Costs</strong></td>
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<td>5.4</td>
<td>6.4</td>
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<td><strong>Recurrent Costs</strong></td>
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<td>0.9</td>
<td>0.3</td>
<td>0.3</td>
<td>0.0</td>
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<tr>
<td><strong>Total Project Costs</strong></td>
<td>3.1</td>
<td>6.3</td>
<td>7.3</td>
<td>3.2</td>
<td>1.1</td>
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<tr>
<td><strong>Total Financing</strong></td>
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<td>6.3</td>
<td>7.3</td>
<td>3.2</td>
<td>1.1</td>
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</table>

**Main assumptions:**
Public Utility Cistoca
Solid Waste Management Project
Projected Income Statement (000 KM)

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td><strong>Revenues</strong></td>
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<tr>
<td>Households</td>
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<td>1,931</td>
<td>1,988</td>
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<td>2,063</td>
<td>2,102</td>
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<td>Industrial</td>
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<td>Public Hygiene</td>
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<td>Landfill</td>
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<td>Other Income</td>
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<td>42</td>
<td>61</td>
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<td><strong>Operational Expenses</strong></td>
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<tr>
<td>Cost of Service</td>
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<td>1,550</td>
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<td>1,636</td>
<td>1,690</td>
<td>1,763</td>
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<td>Wages &amp; Social Costs</td>
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<td>Depreciation</td>
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<td>Other Expenses</td>
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<td>1,148</td>
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<td><strong>Total Operational Expenses</strong></td>
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<td>6,677</td>
<td>6,824</td>
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<td><strong>Operating Income</strong></td>
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<td>260</td>
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<td>Financial Costs</td>
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<td>5</td>
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<td>42</td>
<td>72</td>
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<tr>
<td><strong>Income before Taxes</strong></td>
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<td>89</td>
<td>247</td>
<td>244</td>
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<td>285</td>
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<td><strong>Income Taxes</strong></td>
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<tr>
<td><strong>Net Income</strong></td>
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<td>171</td>
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<tr>
<td><strong>Operating Ratio</strong></td>
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<td>93%</td>
<td>99%</td>
<td>96%</td>
<td>96%</td>
<td>96%</td>
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<td><strong>Working Ratio</strong></td>
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<td>88%</td>
<td>85%</td>
<td>84%</td>
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<td>82%</td>
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## Public Utility Cistoca
### Solid Waste Management Project
### Projected Balance Sheet (000 KM)

<table>
<thead>
<tr>
<th></th>
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Public Utility Cistoca
Solid Waste Management Project
Projected Cash Flow Statements (000 KM)
### Mostar Project
#### Solid Waste Management Project
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### Mostar Project

#### Solid Waste Management Project

#### Projected Balance Sheet (000 KM)

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|                |      |      |      |      |      |      |
| **CAPITALIZATION AND LIABILITIES** |      |      |      |      |      |      |
| **Current Liabilities** |      |      |      |      |      |      |
| Accounts Payable | 56   | 114  | 142  | 81   | 33   | 34   |
| Taxes Payable   | 22   | 23   | 24   | 24   | 25   | 26   |
| **Total Current Liabilities** | 78   | 136  | 165  | 105  | 58   | 59   |
| **Long Term Liabilities** |      |      |      |      |      |      |
| Long Term Loans | 460  | 1,432| 2,609| 3,188| 3,410| 3,240|
| **Equity**      |      |      |      |      |      |      |
| Charter Capital | 5    | 5    | 5    | 5    | 5    | 5    |
| Retained Earnings | 6    | 23   | 49   | 78   | 114  | 148  |
| **Total Equity** | 11   | 28   | 54   | 83   | 119  | 153  |
| **TOTAL CAPITALIZATION AND LIABILITIES** | 550  | 1,598| 2,829| 3,377| 3,588| 3,453|
| **Current Ratio** | 1.1  | 1.5  | 2.6  | 5.8  | 10.4 | 7.0  |
### Mostar Project
#### Solid Waste Management Project
#### Projected Cash Flow Statements (000 KM)

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<td>(119)</td>
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<td>Add: Charter Capital</td>
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<tr>
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<td>25</td>
<td>76</td>
<td>146</td>
<td>123</td>
<td>(55)</td>
<td>(197)</td>
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<tr>
<td>Cash Surplus/Deficit</td>
<td>25</td>
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<td>123</td>
<td>(55)</td>
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<tr>
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<td>316</td>
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<td><strong>Debt Service Coverage</strong></td>
<td>12.2</td>
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- 48 -
Tuzla Project
Solid Waste Management Project
Projected Income Statement (000 KM)

<table>
<thead>
<tr>
<th></th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
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<tr>
<td>Landfill</td>
<td>280</td>
<td>505</td>
<td>817</td>
<td>1,071</td>
<td>1,103</td>
<td>1,339</td>
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<tr>
<td>Total Revenues</td>
<td>280</td>
<td>505</td>
<td>817</td>
<td>1,071</td>
<td>1,103</td>
<td>1,339</td>
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<td><strong>Operational Expenses</strong></td>
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<td>46</td>
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<td>161</td>
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<td>525</td>
<td>568</td>
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<td>462</td>
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<td>Financial costs</td>
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<td><strong>Income before Taxes</strong></td>
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## Tuzla Project
### Solid Waste Management Project
#### Projected Balance Sheet (000 KM)

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<thead>
<tr>
<th>Year</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
</tr>
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<tbody>
<tr>
<td><strong>Current Assets</strong></td>
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<td></td>
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<td></td>
<td></td>
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<tr>
<td>Cash</td>
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<td>544</td>
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<td>1,582</td>
<td>1,247</td>
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<td>12,800</td>
<td>12,504</td>
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#### CAPITALIZATION AND LIABILITIES

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<th>Year</th>
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<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
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<td>2003</td>
<td>2004</td>
<td>2005</td>
<td>2006</td>
<td>2007</td>
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<td>------</td>
<td>------</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td><strong>Net Income</strong></td>
<td>57</td>
<td>108</td>
<td>189</td>
<td>290</td>
<td>279</td>
<td>462</td>
</tr>
<tr>
<td><strong>Add: Depreciation</strong></td>
<td>40</td>
<td>161</td>
<td>336</td>
<td>471</td>
<td>525</td>
<td>568</td>
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<tr>
<td><strong>Interest</strong></td>
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<td>244</td>
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<tr>
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<td>331</td>
<td>230</td>
<td>476</td>
<td>-335</td>
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<tr>
<td><strong>Cash Surplus/Deficit</strong></td>
<td>224</td>
<td>320</td>
<td>331</td>
<td>230</td>
<td>476</td>
<td>-335</td>
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<td><strong>Cash at Beginning of Year</strong></td>
<td>0</td>
<td>224</td>
<td>544</td>
<td>875</td>
<td>1,105</td>
<td>1,582</td>
</tr>
<tr>
<td><strong>Cash at End of Year</strong></td>
<td>224</td>
<td>544</td>
<td>875</td>
<td>1,105</td>
<td>1,582</td>
<td>1,247</td>
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<tr>
<td><strong>Debt Service Coverage</strong></td>
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<td>3.3</td>
<td>1.4</td>
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Annex 6(A): Procurement Arrangements

BOSNIA AND HERZEGOVINA: Solid Waste Management Project

Procurement

As planned, the project will be implemented over a period of five years. Procurement of goods and works would be carried out in accordance with the Bank’s "Guidelines for Procurement Under IBRD Loans and IDA Credits" (January 1995, revised January 1996, August 1996, September 1997 and January 1999). For consultants’ services, the procurement would follow the Bank’s guidelines "Selection and Employment of Consultants by World Bank Borrowers," (January 1997, revised September 1997 and January 1999).

Project Implementation: The project would be implemented during FY 2002-2007 under the overall responsibility of the Ministry of Physical Planning and Environment in the Federation and the Ministry of Urban Housing, Civil Engineering and Environment in RS. A Project Management Unit (PMU) has been established in the Federation (MOPE) for implementation, including procurement and financial management aspects, of the proposed project. The PMU is in the process of being staffed with qualified personnel. A Procurement Manager, Procurement Officer and Accountant have already been hired. The PMU will consist of a Director (head of the PMU), Procurement Manager, Procurement Officer, Financial Manager and an Accountant. Project Implementing Teams (PITs) will be established in the Solid Waste Utilities that are managing the landfill site. The PITs will consist of a Procurement Officer and Accountant and other technical staff. The PMU will have overall responsibility for implementation, including procurement actions. The PMU will manage the implementation of the project and the PIT will work closely with the PMU.

On-lending Arrangements: The Federation Government, through the Ministry of Finance, would onlend the Credit to the Utilities in the Federation. The RS Government, through the Ministry of Finance, Housing, Civil Engineering and Environment would on lend the credit to the Utility in RS.

Procurement Plan. Project costs, detailed by procurement arrangements are in tables A and A1. Prior review thresholds are in Table B. A project procurement plan detailing the packaging and estimated schedule of the major procurement actions and all other procurement information, including the capability of the implementing agency, the date of publication of the General Procurement Notice and the Bank's review process, are presented in Tables B1, B2, B3 and B4. For purposes of convenience procurement contracts have been shown separately for each region; (actual procurement of similar goods and works will be grouped into larger ICB packages). The total value of Bank-financed goods, works and services procurement is estimated at US$18 million out of a total project cost of US$21 million. US$1.5 million of project cost has been allocated to cover institutional strengthening and operating costs of PMU and PITs.

Grouping of Contracts. To the extent possible, items to be procured be grouped into major bid packages to encourage competitive bidding and to ensure standardization. This will mainly apply to equipment.

Implementation. The PMU will manage the implementation of the project, including the supervision of procurement. Progress on procurement would be reported to the Bank in the quarterly Project Management Reports (PMR) prepared by the Borrower.
**Procurement Capacity.** The PMU will have primary responsibility for procurement. The PMU is in the process of being established and appropriately staffed. Currently, neither the PMU nor the PITs have significant procurement capacity. The Government will appoint a procurement expert (consultant) with adequate working experience in Bank-financed procurement with Bank approval to assist with the procurement functions under the Project. In addition, the PMU will be assisted by a procurement manager, procurement officer, engineers and technical consultants, familiar with Bank procurement guidelines in preparing of procurement packages. The procurement capacity will be further strengthened by additional training of the designated procurement persons. In addition, training in Bank procurement procedures will be provided through a workshop during the project launch mission, planned for September, 2002.

The Bank has not yet completed the CPAR for BiH. The country enacted a procurement decree in 1998 that is a good stepping stone for a regular procurement law. Most of procurement in the public sector is funded through bilateral or international donors and is carried out under their procurement procedures and documentation. The country does not have standard bidding documents nor does the Procurement Decree provide adequate guidance on international procurement.

Considering the above the following action plan will be implemented before credit effectiveness to strengthen the procurement capacity of the PMU at the Federal MOPE and PIT levels, and to provide information and support to all concerned with implementing procurement:

- **a)** The PMU is in the process of recruiting an experienced procurement expert (external consultant). The procurement expert will have adequate working experience in Bank-financed procurement will be appointed before the effectiveness of the credit or the project launch workshop, whichever is earlier;

- **b)** The PMU, with assistance from a procurement expert, will prepare and implement a training program for the Procurement Manager and officer and other staff involved in procurement work at the PMU that begins during the project launch workshop and is completed within six months of Credit effectiveness;

- **c)** The PITs in the Utilities will perform procurement functions under the guidance and supervision of the PMU Procurement Manager and Procurement Expert. The PITs Procurement officer shall be thoroughly trained in Bank procedures, bidding documents, bid evaluation systems etc. by the Procurement Expert soon after the former's appointment. The PMU Procurement Expert will also provide an extensive training in-bid evaluation to members of evaluation committees and will participate in the evaluation of bids for procurement packages handled by the PITs; and

- **d)** The PMU will develop a procurement monitoring system to track procurement actions for all procurement packages related to the Project and produce up-to-date periodic reports for itself and the Bank.

**Thresholds for Procurement Methods.** Although the PMU has no experience in Bank-financed projects; the above action plan provides a reasonable assurance regarding the procurement related capacity at the PMU as a Procurement Manager has been hired and an action plan has been agreed on to further strengthen capacity. In the absence of a CPAR and country risk assessment, the PMU's and PIT's procurement capacity is rated as high risk. It is, therefore, recommended that the following thresholds be used:

1. **Goods.** Goods to be financed under the Credit include: earth-moving and waste collection equipment.
a. **International Competitive Bidding (ICB)**. Goods and equipment that are estimated to cost more than US$100,000 per contract will be procured using ICB procedures;

b. **International Shopping (IS)**. Goods and equipment contracts estimated to cost less than US$100,000 per contract up to an aggregate amount of US$400,000 may be procured under contracts awarded on the basis of international shopping procedures using Region's sample IS document.

c. **National Shopping (NS)**. Goods and equipment contracts estimated to cost US$50,000 equivalent or less per contract up to an aggregate amount of US$250,000 may be procured under contracts awarded on the basis of national shopping procedures.

2. **Works**. Works to be financed under the Credit include: rehabilitation of landfill, clean up of wild dumpsites, waste transfer stations, and related activities.

a. **International Competitive Bidding (ICB)**. Works that are estimated to cost more than US$1,000,000 per contract will be procured using ICB procedures.

b. **National Competitive Bidding (NCB)** works that are estimated to cost less than US$1,000,000 per contract up to an aggregate amount of US$7,000,000 may be procured using NCB procedures. Bid packages will use the ECA Region NCB bidding document. Interested foreign bidders shall be permitted to participate.

c. **Minor Works (MW)** works that are estimated to cost less than US$50,000 per contract up to an aggregate amount of US$200,000 may be procured by using the Minor Works procedure on the basis of at least three written quotations. The contract will be awarded to the bidder who has submitted the lowest priced quotation and who has the capacity and resources to complete the works.

Bank Review: The following prior review thresholds will be applicable with respect to procurement of goods and civil works:

(a) ICB packages;
(b) First two NCB packages for works irrespective of value and all NCB contracts for civil works estimated to cost US$500,000 or more;
(c) First Minor Works package for civil works; and
(d) First International Shopping package for goods or equipment.

3. **Consultants' Services**. One large consulting services contract has been identified that would be subject to international competition. Short lists for assignments estimated to cost less that $200,000 each may consist of qualified local firms.

a. **Quality and Cost Based Selection (QCBS)** US$1.40 million. This procedure would be used for the selection of consultants for the Business Plan for technical assistance and the engineering services for design and construction supervision.
b. **Consultants' Qualifications (CQ) US$0.640 million.** This procedure would be used for public awareness and environmental monitoring program and training assignments estimated to cost less than US$100,000 each.

c. **Single Source Selection.** Single source selection up to an estimated US$200,000 over a 3 year would be used to hire a local Solid Waste Utility to provide ad hoc training throughout the project and best operational and maintenance practices for participating Utilities in the project.

d. **Individual Consultants.** For assignments of routine nature, individual consultants would be hired according to the provisions of section V of the Consultant Guidelines. Selection will be made on the basis of comparison of three CVs invited from qualified consultants.

Bank Review: The following prior review requirements shall apply:

(a) Terms of Reference for all consulting packages;
(b) TORs, short lists, evaluation reports, draft contracts with Firms estimated to cost US$100,000 or more; and
(c) TORs, Consultant qualifications, draft contracts with Individual Consultants estimated to cost US$ 30,000 or more.

e. **Post Review.** Contracts not subject to prior Bank review will be subject to post review at the rate of one in five contracts.
Procurement methods (Table A)

### Table A: Project Costs by Procurement Arrangements
(US$ million equivalent)

<table>
<thead>
<tr>
<th>Expenditure Category</th>
<th>NCB</th>
<th>NGB</th>
<th>Other</th>
<th>NBF</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Works</td>
<td>3.30</td>
<td>5.43</td>
<td>0.12</td>
<td>0.00</td>
<td>8.85</td>
</tr>
<tr>
<td></td>
<td>(2.70)</td>
<td>(5.19)</td>
<td>(0.11)</td>
<td>(0.00)</td>
<td>(8.00)</td>
</tr>
<tr>
<td>2. Goods</td>
<td>2.00</td>
<td>0.00</td>
<td>0.40</td>
<td>0.00</td>
<td>2.40</td>
</tr>
<tr>
<td></td>
<td>(2.00)</td>
<td>(0.00)</td>
<td>(0.40)</td>
<td>(0.00)</td>
<td>(2.40)</td>
</tr>
<tr>
<td>3. Services</td>
<td>0.00</td>
<td>0.00</td>
<td>3.65</td>
<td>0.00</td>
<td>3.65</td>
</tr>
<tr>
<td></td>
<td>(0.00)</td>
<td>(0.00)</td>
<td>(1.50)</td>
<td>(0.00)</td>
<td>(1.50)</td>
</tr>
<tr>
<td>4. Operating Expenditure</td>
<td>0.00</td>
<td>0.00</td>
<td>1.45</td>
<td>0.00</td>
<td>1.45</td>
</tr>
<tr>
<td></td>
<td>(0.00)</td>
<td>(0.00)</td>
<td>(1.45)</td>
<td>(0.00)</td>
<td>(1.45)</td>
</tr>
<tr>
<td>5. Unallocated</td>
<td>0.00</td>
<td>0.00</td>
<td>4.65</td>
<td>0.00</td>
<td>4.65</td>
</tr>
<tr>
<td></td>
<td>(0.00)</td>
<td>(0.00)</td>
<td>(4.65)</td>
<td>(0.00)</td>
<td>(4.65)</td>
</tr>
<tr>
<td>Total</td>
<td>5.30</td>
<td>5.43</td>
<td>10.27</td>
<td>0.00</td>
<td>21.00</td>
</tr>
<tr>
<td></td>
<td>(4.70)</td>
<td>(5.19)</td>
<td>(8.11)</td>
<td>(0.00)</td>
<td>(18.00)</td>
</tr>
</tbody>
</table>

1 Figures in parenthesis are the amounts to be financed by the IDA Credit. All costs include contingencies.

2 Includes civil works and goods to be procured through national shopping, consulting services, services of contracted staff of the project management office, training, technical assistance services, and incremental operating costs related to (i) managing the project, and (ii) re-lending project funds to local government units.
### Table A1: Consultant Selection Arrangements (optional)

(US$ million equivalent)

<table>
<thead>
<tr>
<th>Consultant Services</th>
<th>QCBS</th>
<th>QBS</th>
<th>SFB</th>
<th>LCS</th>
<th>CQ</th>
<th>Other</th>
<th>N.B.F.</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Firms</td>
<td>1.40</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>1.45</td>
<td>0.20</td>
<td>0.00</td>
<td>3.05</td>
</tr>
<tr>
<td></td>
<td>(0.70)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(1.50)</td>
</tr>
<tr>
<td>B. Individuals</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.60</td>
<td>0.00</td>
<td>0.60</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.00)</td>
</tr>
<tr>
<td>Total</td>
<td>1.40</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>1.45</td>
<td>0.80</td>
<td>0.00</td>
<td>3.65</td>
</tr>
<tr>
<td></td>
<td>(0.70)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(1.50)</td>
</tr>
</tbody>
</table>

1. Including contingencies

Note: QCBS = Quality- and Cost-Based Selection  
QBS = Quality-based Selection  
SFB = Selection under a Fixed Budget  
LCS = Least-Cost Selection  
CQ = Selection Based on Consultants' Qualifications  
Other = Selection of individual consultants (per Section V of Consultants Guidelines), Commercial Practices, etc.  
N.B.F. = Not Bank-financed  
Figures in parenthesis are the amounts to be financed by the Bank Credit.
Prior review thresholds (Table B)

### Table B: Thresholds for Procurement Methods and Prior Review

<table>
<thead>
<tr>
<th>Expenditure Category</th>
<th>Method</th>
<th>Thresholds</th>
<th>Subject to Prior Review</th>
<th>US$ millions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Works</td>
<td>ICB</td>
<td>&gt;1000</td>
<td></td>
<td>3.30</td>
</tr>
<tr>
<td></td>
<td>NCB</td>
<td>&lt;1000</td>
<td></td>
<td>4.63</td>
</tr>
<tr>
<td></td>
<td>MW</td>
<td>&lt;50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Goods</td>
<td>ICB</td>
<td>&gt;100</td>
<td></td>
<td>2.00</td>
</tr>
<tr>
<td></td>
<td>IS</td>
<td>&lt;100</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NS</td>
<td>&lt;50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Services</td>
<td>QCBS</td>
<td></td>
<td></td>
<td>1.40</td>
</tr>
<tr>
<td></td>
<td>SS</td>
<td></td>
<td></td>
<td>0.20</td>
</tr>
<tr>
<td></td>
<td>CQ</td>
<td></td>
<td></td>
<td>0.70</td>
</tr>
<tr>
<td></td>
<td>Individual</td>
<td></td>
<td></td>
<td>0.30</td>
</tr>
<tr>
<td>4. Operating Expenditures</td>
<td>NA</td>
<td>NA</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2/ These contracts are likely to be procured with ICB/Goods and NCB (works) packages.

Total value of contracts subject to prior review: US$12.53 million

**Overall Procurement Risk Assessment**

High

**Frequency of procurement supervision missions proposed:** One every 4 months (includes special procurement supervision for post-review/audits)
A Capacity Assessment of the Borrower was carried out during the appraisal mission in March 2002 and the following action plan has been prepared taking into account the experience gained in similar projects financed by the Bank. The procurement arrangements under the project consist of a Project Management Unit (PMU) at the Federation level and Project Implementing Teams (PITs) at the Utility levels to procure the goods, works, and consulting services for the proposed project in accordance with the Bank/IDA Procurement and Consultant Guidelines. The PMU at the Federation level has been established and is in the process of being staffed while the PITs are in the process of being established. The PMU will be responsible for ensuring that the procurement in the Federation and by the PITs is conducted in accordance with Bank/IDA Procurement and Consultant Guidelines. The PMU will be headed by a Director and will be supported by a Procurement Manager experienced in Bank/IDA financed procurement. In addition to the Procurement Manager, the PMU will include Procurement Officer who would be provided with on-the-job training in Bank/IDA procurement rules and procedures by the Procurement Specialist. The PITs will be supported by a Procurement Officer familiar with Bank/IDA procurement procedures and guidelines and will function under the direct supervision of the PMU's Procurement Team. Procurement training will also be provided through an extensive Project Launch workshop which will take place in September 2002 or prior to Credit Effectiveness, whichever is earlier. A Procurement Expert (external consultant) will also be hired with adequate working experience in Bank-financed procurement before the effectiveness of the credit or the project launch workshop to assist with additional procurement matters. Funding is also provided for further training of the Procurement Manager and Procurement Officer at the ILO institute in Turin. Considering the currently weak procurement legislation, particularly the lack of internal controls, ethical standards and anti-corruption measures, the country is rated as high risk from a procurement perspective. To minimize these risks, the Bank will again review the procurement capacity of the PMU and PITs during the first supervision mission after credit effectiveness and, if necessary, recommend further strengthening of the PMU and PITs.

### Table B.1 - Capacity Assessment of the Project Management Unit (PMU) and PIT in Procurement and Assistance Requirements in Procurement Monitoring System

<table>
<thead>
<tr>
<th>Country Procurement Assessment Report status:</th>
<th>Are the bidding documents for the procurement actions for the first year ready by negotiations:</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Bank conducted a CPAR recently but the final report has not yet been finalized.</td>
<td>The preparation of bidding documents for the first year are underway and will be ready by project effectiveness.</td>
</tr>
</tbody>
</table>

### TRAINING INFORMATION AND DEVELOPMENT ON PROCUREMENT

<table>
<thead>
<tr>
<th>Estimated Date of Project Launch Workshop</th>
<th>Date of publication of General Procurement Notice</th>
<th>Indicate if there is procurement subject to mandatory SPN in Development Business:</th>
<th>Domestic Preference for Goods:</th>
<th>Domestic Preference for Works, if applicable:</th>
</tr>
</thead>
<tbody>
<tr>
<td>September 2002</td>
<td>April 30, 2002</td>
<td>Yes</td>
<td>yes</td>
<td>yes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Retroactive Financing:</th>
<th>No</th>
<th>Project Preparation Facility:</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explain:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Explain briefly the Procurement Monitoring System:**

The PMU at the Federal level will be responsible for ensuring that procurement is conducted in accordance with Bank/IDA procurement and consultant guidelines. The PMU will also supervise and provide assistance to PITs in the procurement process. The PMU will be supported by technical and financial staff. All procurement documents requiring prior review will be cleared by a PAS and appropriate technical staff. Procurement information will be collected by the PMU for all the Utilities to prepare quarterly progress reports and submission to IDA. The information will include: a) revised cost estimates for individual contracts; and b) revised timing of procurement actions, including advertising, bidding, contract award and complete dates for each contract.

**Co-financing: Explain briefly the Procurement arrangements under co-financing:**

The Project financing plan includes a grant of US$2.0 million from various donors who have agreed to the use of IDA procedures and guidelines for procurement progress.
## PROCUREMENT STAFFING

**Indicate name of Procurement Staff or Bank's staff part of Task Team responsible for the procurement in the Project:**

| Name: Takao Ikekami (PAS), Sr. Sanitary Engineer, (202) 473-2334; tiikegami@worldbank.org |

**Explain briefly the expected role of the Field Office in Procurement:**

Bank's Resident Mission in BH will provide support as needed.

---

1. Thresholds generally differ by country and project. Consult OD 11.04 "Review of Procurement Documentation" and contact the Regional Procurement Adviser for guidance.
### Financial Management

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

#### Project Procurement Plan

**Project Component A - Tuzla Region** (US$ 5.60 million)

<table>
<thead>
<tr>
<th>Description</th>
<th>Type</th>
<th>Estimated costs (US'000)</th>
<th>Procurement Method</th>
<th>Prequal.</th>
<th>Postqual.</th>
<th>Bid/RFP Preparation</th>
<th>Bid Invitation</th>
<th>Contract signing</th>
<th>Contract completion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rehabilitation works for landfill site</td>
<td>CW</td>
<td>1400 ICB</td>
<td>Postqual.</td>
<td>5/03</td>
<td>7/03</td>
<td>12/03</td>
<td>6/05</td>
<td>6/05</td>
<td></td>
</tr>
<tr>
<td>Supply of compactors and loaders</td>
<td>G</td>
<td>350 ICB</td>
<td></td>
<td>5/02</td>
<td>11/03</td>
<td>1/03</td>
<td>6/03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction works of 3 reloading stations</td>
<td>CW</td>
<td>700 NCB</td>
<td>Postqual.</td>
<td>5/03</td>
<td></td>
<td>12/03</td>
<td>11/04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engineering services for design and construction supervision</td>
<td>CS</td>
<td>350 QCBS</td>
<td>SL</td>
<td>9/02</td>
<td>12/02</td>
<td>1/03</td>
<td>12/03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technical Assistance - Waste Management and landfill operation</td>
<td>CQ</td>
<td>100 CQ</td>
<td>SL</td>
<td>6/03</td>
<td>9/02</td>
<td>1/03</td>
<td>12/06</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public Awareness and Environmental monitoring</td>
<td>CQ</td>
<td>100 CQ</td>
<td>SL</td>
<td>9/02</td>
<td>2/03</td>
<td>12/06</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clean up program for wild dump sites</td>
<td>CW</td>
<td>1300 ICB</td>
<td>Postqual.</td>
<td>11/02</td>
<td>01/03</td>
<td>4/03</td>
<td>12/06</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Closure program for existing landfills</td>
<td>CW</td>
<td>900 NCB</td>
<td>Postqual.</td>
<td>8/03</td>
<td>10/03</td>
<td>2/04</td>
<td>12/05</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supply of equipment for improved collection</td>
<td>G</td>
<td>250 ICB</td>
<td></td>
<td>2/03</td>
<td>4/03</td>
<td>6/03</td>
<td>10/03</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5450</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Procurement for an "Urgent Works and Goods Program" of approximately US$0.60 million is already in progress. It will mainly cover access roads, fences, weigh scales, compactors and loaders. Tender documents are expected to be completed by October, 2002. Expected completion date of this program is 6/03.
## Project Procurement Plan

### Project Components B

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bosnia Business Plan</td>
<td>CS</td>
<td>500</td>
<td>QBCS</td>
<td>SL</td>
<td>6/03</td>
<td>7/03 9/03 10/03</td>
<td>11/03</td>
<td>11/05</td>
</tr>
<tr>
<td>Overall Solid Waste Training</td>
<td>CS</td>
<td>200</td>
<td>SS</td>
<td>NA</td>
<td>NA</td>
<td>8/02 10/02 11/02</td>
<td>1/03</td>
<td>11/06</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Project Procurement Plan

**Project Component C - Banja Luka Region (US$ 3.00 million)**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Rehabilitation works of existing landfill</td>
<td>CW</td>
<td>750 NCB</td>
<td>Postqual.</td>
<td></td>
<td>01/04</td>
<td>05/04 12/04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supply of compactor and front wheel loader</td>
<td>G</td>
<td>450 ICB</td>
<td></td>
<td></td>
<td>7/02 02/04 04/04</td>
<td>11/02 5/03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engineering services for design and construction supervision</td>
<td>CS</td>
<td>200 QCBS</td>
<td>SL</td>
<td>9/02</td>
<td>10/02</td>
<td>12/03 1/03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technical Assistance-Waste Management and landfill operation</td>
<td>CS</td>
<td>200 Q</td>
<td>SL</td>
<td>9/02</td>
<td>12/02</td>
<td>9/03 12/03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Old vehicles collection and recycling program</td>
<td>CW</td>
<td>120 MWM</td>
<td>Postqual.</td>
<td></td>
<td>8/03 09/03 10/03</td>
<td>11/03 12/04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction works of 1 reloading stations</td>
<td>CW</td>
<td>400 NCB</td>
<td>Postqual.</td>
<td></td>
<td>01/04 02/04 03/04</td>
<td>5/04 12/04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clean up program for wild dump sites</td>
<td>CW</td>
<td>450 NCB</td>
<td>Postqual.</td>
<td></td>
<td>8/03 10/03 11/03</td>
<td>12/03 12/06</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Closure program for existing landfills</td>
<td>CW</td>
<td>400 NCB</td>
<td>Postqual.</td>
<td></td>
<td>8/03 10/03 11/03</td>
<td>12/03 12/06</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public Awareness and Environmental monitoring program</td>
<td>CS</td>
<td>200 Q</td>
<td>SL</td>
<td>9/02</td>
<td>10/02</td>
<td>12/02 12/03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supply of equipment for improved collection</td>
<td>G</td>
<td>550 ICB</td>
<td></td>
<td></td>
<td>01/04 02/04 04/04</td>
<td>6/04 9/04</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>3700</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Procurement for an "Urgent Works and Goods Program" of approximately US$0.30 million is well underway. It will mainly cover access roads, fences, weigh scales, compactors and loaders. Tender documents are expected to be completed by July 2002. Expected completion date of this program is 6/03.
## Project Procurement Plan

**Project Component D - Mostar Region (US$ 1.47 million)**

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Waste Recycling program paper, cardboard &amp; metals</td>
<td>CW</td>
<td>150 NCB</td>
<td>Postqual.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>7/03 6/03 10/03</td>
<td>11/03 6/05</td>
<td></td>
</tr>
<tr>
<td>Construction works of 2 reloading stations</td>
<td>CW</td>
<td>300 NCB</td>
<td>Postqual.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12/02 11/02 2/03</td>
<td>3/03 4/04</td>
<td></td>
</tr>
<tr>
<td>Engineering services for design and construction supervision</td>
<td>CS</td>
<td>100 QCBS SL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9/02 11/02 12/02</td>
<td>1/03 12/03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clean up program for wild dump sites</td>
<td>CW</td>
<td>600 NCB</td>
<td>Postqual.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8/03 10/03 11/03</td>
<td>12/03 6/05</td>
<td></td>
</tr>
<tr>
<td>Supply of equipment for improved collection</td>
<td>G</td>
<td>200 ECB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2/03 4/03 5/03</td>
<td>6/03 12/03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public Awareness and Environmental monitoring program</td>
<td>CQ</td>
<td>70 CQ SL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10/02 12/02</td>
<td>2/03 12/06</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1420</td>
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<td></td>
</tr>
</tbody>
</table>

- 64 -
## Project Procurement Plan

### Project Components E

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Management</td>
<td>CS</td>
<td>500</td>
<td>Other</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>6/02</td>
<td>6/07</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>500</strong></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

### Project Components F

<table>
<thead>
<tr>
<th></th>
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<th></th>
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</thead>
<tbody>
<tr>
<td>Tuzla Region - Incremental Operating Costs</td>
<td></td>
<td>550</td>
<td>Other</td>
<td>NA</td>
<td>NA</td>
<td></td>
<td></td>
<td>12/06</td>
</tr>
<tr>
<td>Banja Luka - Incremental Operating Costs</td>
<td></td>
<td>310</td>
<td>Other</td>
<td>NA</td>
<td>NA</td>
<td></td>
<td></td>
<td>12/06</td>
</tr>
<tr>
<td>Mostar Region - Incremental Operating Costs</td>
<td></td>
<td>800</td>
<td>INDVD</td>
<td>NA</td>
<td>NA</td>
<td></td>
<td></td>
<td>12/06</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>940</strong></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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## Project Procurement Plan

<table>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Unallocated</td>
<td>To be determined</td>
<td>460.00</td>
<td>To be determined</td>
<td></td>
<td></td>
<td>6/07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>460.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Project Management Unit (PMU)

<table>
<thead>
<tr>
<th>Description</th>
<th>Type</th>
<th>Estimated costs (US$ 000)</th>
<th>Procurement Method</th>
<th>Implementation (US$1000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff Salaries</td>
<td>CS</td>
<td>310</td>
<td>Individual</td>
<td>2002/3</td>
</tr>
<tr>
<td>Training</td>
<td>CS</td>
<td>50</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>Office Equipment</td>
<td>G</td>
<td>20</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>3 Vehicles</td>
<td>G</td>
<td>30</td>
<td>NA</td>
<td></td>
</tr>
</tbody>
</table>

## Notes:

- Estimated dates are to be determined.
- TOTAL costs are calculated as follows: 460.00 US$'000.
Executive Summary

BiH is an emerging post-conflict country with weak public financial management capacities and high perceived levels of institutional corruption. The project is to be implemented under the overall responsibility of the Ministry of Physical Planning and Environment in the Federation and the Ministry of Urban Housing, Civil Engineering and Environment in the Republika Srpska. A Project Management Unit (PMU) has been established in the Federation for overall coordination and implementation, including procurement and financial management aspects, of the project.

A review to determine whether financial management arrangements within the PMU are acceptable to the Bank was undertaken in April and May 2002. Detailed financial management assessment questionnaires and supporting documents are included in the project files.

Based on the assessment of the financial management system and processes, and the assessment of risks and mitigation measures, it is concluded that the PMU satisfies the Bank’s minimum financial management requirements.

A summary of the financial management assessment and conclusions is as follows:

<table>
<thead>
<tr>
<th>Financial Management Assessment</th>
<th>Rating</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Implementing Entity</td>
<td>Satisfactory</td>
<td>The Foundation for Sustainable Development is contracted to handle the financial management arrangement for the project during an introductory period.</td>
</tr>
<tr>
<td>2. Funds Flow</td>
<td>Satisfactory</td>
<td>Fund flows were agreed upon during negotiations.</td>
</tr>
<tr>
<td>3. Staffing</td>
<td>Satisfactory</td>
<td>The Foundation for Sustainable Development will train the Financial manager and an accountant.</td>
</tr>
<tr>
<td>5. Internal Audit</td>
<td>NA</td>
<td>No reliance placed on internal audit</td>
</tr>
<tr>
<td>6. External Audit</td>
<td>Satisfactory</td>
<td>The project will be audited under a country-wide audit agreement. All Utilities would be audited annually by acceptable auditors.</td>
</tr>
<tr>
<td>7. Reporting and Monitoring</td>
<td>Satisfactory</td>
<td>The format for Financial Monitoring Reports (FMRs) was agreed upon during Negotiations.</td>
</tr>
<tr>
<td>8. Information Systems</td>
<td>Satisfactory</td>
<td>The Foundation for Sustainable Development has installed new accounting software, which has been used successfully in other World Bank projects.</td>
</tr>
</tbody>
</table>

Overall Financial Management Rating | Satisfactory
**Country Issues.**

A Country Financial Accountability Assessment (CFAA) for BiH was carried out in CY2001. The draft CFAA report identifies issues of extremely weak public sector budgeting, accounting, reporting and auditing. The draft CFAA report also identifies an environment of pervasive corruption at all levels of the economy. In view of the above, the draft CFAA report concludes that it remains appropriate to maintain the current “ring fencing” of financial resources in Bank projects to provide the appropriate fiduciary safeguards. The draft CFAA report does, however, identify the medium to longer term goal of mainstreaming project management into Ministries and Departments, and to consolidate Project Implementation Units (PIUs) and refrain from the creation of new PIUs. In addition, the PMU has developed policies and procedures that operate parallel to those of the current public expenditure management framework to minimize project financial management risks.

The governing system in BiH is complex and comprises several government levels with appropriate legislative and fiscal powers as well as the Office of the High Representative (OHR). It includes the State of BiH (State); Federation Bosnia and Herzegovina (Federation); Republic of Srpska (RS); Brecko District (self-administrative, overseen by OHR), and 10 Cantons (Canton) of the Federation. Below the Canton level are local governments - cities and municipalities.

In 2002, the Bank completed a country financial management supervision review (CFMSR) of all active projects in BiH and identified some common financial management issues, including lack of counterpart funding. The Bank will confirm with the PMU that all key issues are appropriately addressed in the design of the project's financial management arrangements.

**Risk Analysis.**

The risk analysis from the Financial Management Questionnaire (Annex A) is as presented below.

<table>
<thead>
<tr>
<th>Risk</th>
<th>Rating</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inherent Risk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Country Financial Management Risk</td>
<td>High</td>
<td>According to the draft CFAA, there is generally low financial management capacity and accountability in public sector.</td>
</tr>
<tr>
<td>2. Project Financial Management Issues</td>
<td>High</td>
<td>High financial risk with the financial viability of the four Utilities (including one new Utility).</td>
</tr>
<tr>
<td>3. Banking sector</td>
<td>High</td>
<td>Weak banking sector - relatively small institutions.</td>
</tr>
<tr>
<td>4. Perceived corruption</td>
<td>High</td>
<td>Draft CFFA notes pervasive corruption at all levels of the economy</td>
</tr>
<tr>
<td>5. Counterpart funds</td>
<td>High</td>
<td>Both Federation and RS have had problems with counterpart funds in 2001 and 2002</td>
</tr>
<tr>
<td>Overall Inherent Risk</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>-----------------------</td>
<td>------</td>
<td></td>
</tr>
<tr>
<td>Control Risk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Implementing Entity</td>
<td>High</td>
<td>The project will be implemented by a new PMU. The Head of the PMU is not yet appointed.</td>
</tr>
<tr>
<td>2. Funds Flow</td>
<td>Substantial</td>
<td>There is a risk of inadequate funding in FBiH and RS.</td>
</tr>
<tr>
<td>3. Staffing</td>
<td>Moderate</td>
<td>The Foundation for Sustainable Development is contracted to take the responsibility for the financial management function of the PMU until a new Financial Manager and Project Accountant have been recruited and trained.</td>
</tr>
<tr>
<td>5. Internal Audit</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>6. External Audit</td>
<td>Moderate</td>
<td>Audits of the financial statements for Utilities are currently carried out by local auditors. These statements do not comply with IAS.</td>
</tr>
<tr>
<td>7. Reporting and Monitoring</td>
<td>Moderate</td>
<td>The Foundation for Sustainable Development is familiar with Bank requirements, and the format for the FMRs was agreed upon during Negotiations.</td>
</tr>
<tr>
<td>8. Information Systems</td>
<td>Moderate</td>
<td>The accounting system has been installed and approved by the Bank.</td>
</tr>
<tr>
<td>Overall Control Risk</td>
<td>Substantial</td>
<td></td>
</tr>
</tbody>
</table>

**Risk Mitigation Strategy:**

*Country financial management risk.* The draft CFAA Report notes that financial structures in government departments are very weak. To compensate, expenditures for the Solid Waste Management Project will be controlled and accounted for by a PMU, established in the Federation to provide overall coordination and implementation of the project.

*Project financial management issues.* The Bank will monitor closely the high risk associated with the financial viability of the Utilities (beneficiaries). In BiH, most communal enterprises have inefficient fee collection systems. In addition, much of the population is not used to paying for waste management services and perceive them as free goods. Raising awareness among the public and municipal authorities that improved waste collection and disposal services will be an important part of the institutional component of this project. To ensure the sustainability of the regional transfer operations and sanitary landfills to be established under the project, both municipal and private waste haulers will have to pay a tipping fee collected on a per unit of weight basis at the transfer and disposal sites. The tipping fee should cover the costs of developing and operating the landfill, as well as closure and aftercare costs. Municipal tariffs for solid waste services must provide for this tipping fee. The Bank should have regular monitoring of these Utilities, for example, every 6 months, to ensure that progress is being made on the financial covenants. If there are unsatisfactory financial management arrangements in the Utilities, the Bank would
require the Utilities to prepare acceptable financial management action plans annually for the Bank and also agree to meet key financial management actions by specified dates.

Banking sector risk. This risk will be mitigated by holding the Special Account(s) for the project in an acceptable commercial Bank. In this context, it should be noted that the charges of domestic commercial banks are based on the size of the total transaction and can therefore be quite substantial. Bank charges for different accounts ought therefore to be taken into consideration when a commercial Bank is selected. Local project accounts would be kept at the minimum.

Perceived corruption risk. The perceived corruption risk will be mitigated by specific measures to safeguard the use of Bank funds, together with longer-term measures to strengthen institutional capacity. Sustainable changes must be implemented in the line Ministries to reduce the potential for corruption and misuse of resources. The risk that the Bank’s funds will not be used as intended for financing the defined investment program is mitigated by "ring-fencing" the project through the PMU and the recruitment of suitably qualified accounting and procurement staff.

Control risk. With respect to the identified control risks, the Bank will re-assess the rating of the financial management arrangements prior to Board presentation to ensure that risks are either properly mitigated or reduced to reflect the new arrangements.

Strengths and Weaknesses.
Strengths. During an introductory phase, the Foundation for Sustainable Development will be the consultant responsible for the financial management arrangements of the Project. This consultant is knowledgeable about Bank project procedures and requirements. The Federation Foundation for Sustainable Development (FSD) was established by special government decree as an autonomous foundation created from the merger of the Employment and Training Foundation, and the Local Development Foundation. Collectively, the FSD has extensive experience with Bank-financed projects, including Local Initiative Projects, Emergency Public Work and Employment Project, Local Development Project, Community Development Project, and Privatization Technical Assistance Project. The DEF consists of a small group of professional managers and project staff. During the financial management assessment, it was agreed that the financial management system and the finance manager of FSD have the necessary capacity and skills to provide such services. FSD has been assessed by the Bank as satisfying the minimum financial requirements. The finance department of FSD has been able to produce good financial reports satisfactory to the Bank for all the projects in which they have been involved. Furthermore, projects managed by FSD have been subject to annual external financial audits since 1997, and have received clear audit opinions on all audits to date. A contract between the Ministry and the Foundation with Terms of Reference acceptable to the Bank has been signed.

Weaknesses. The PMU has not yet recruited and trained a Head of PMU and the Financial Manager. New staff therefore needs to be recruited and trained.

Implementing Entity.
The IDA Credit will be granted to the Government of BiH, which will on-lend the proceeds of the Credit to the Federation and to the RS, which will in turn on-lend to the Utilities (beneficiaries) involved in the project. The proposed Credit is a single operation with two parts, one in each Entity (one in the RS and the other in the Federation). The project is to be implemented under the overall responsibility of the Ministry of Physical Planning and Environment in the Federation and the Ministry of Urban Housing, Civil Engineering and Environment in the Republika Srpska. A PMU has been established in the Federation for implementation, including procurement and financial management aspects, of the whole project. The
component in the RS will also be implemented by the PMU in Federation. The PMU will have overall responsibility for implementation, including procurement and financial management actions.

**Funds Flow.**
Project funds will flow from (i) the Bank either via a single Special Account (with two sub-accounts), which will be replenished on the basis of SOEs or by direct payment on the basis of direct payment withdrawal applications; or from (ii) the Government, via the Treasuries at the Ministries of Finance (MoFs) in the Federation of BiH and the RS on requests made by the PMU via the Ministry of Physical Planning and Environment in the Federation and the Ministry of Urban Housing, Civil Engineering and Environment in the Republika Srpska.

Separate counterpart fund accounts set up in commercial banks for the Federation and RS. The PMU will make all payments for the project, and maintain vouchers and supporting documentation for expenditures for project activities. A maximum advance of 2 weeks' estimated IDA share of expenditures is allowed from the IDA Special Account.

Withdrawal from the IDA Credit will require the approval of the respective Treasury as well as the Head of the PMU. Fund flow arrangements from the IDA Credit, government contribution, participation from Utilities, and donors were finalized during the Negotiations. It was also agreed that from Credit proceeds, SDR 7,040,00 and SDR 3,520,000 were to be allocated to the Federation and RS respectively. The unallocated amount would be allocated as follows: two-thirds for the Federation and one-third for RS.

**Staffing.**
The PMU will consist of a Head of PMU, Procurement Manager, Procurement Officer, Financial Manager and a Project Accountant. This staffing level is satisfactory for the implementation of the project. The positions of Head of PMU and the Financial Manager are not yet filled. In the interim period until appointments and relevant training have taken place, the consultant, the Foundation for Sustainable Development, has been contracted by the PMU to manage day-to-day financial management tasks and responsibilities of the project. The consultant will also participate in the training of the financial management staff.

2. **Audit Arrangements**

**Accounting Policies and Procedures.**
Current accounting practices and standards within the two governments are not at acceptable levels. The draft CFAA report indicates that “the budget classification structures, the chart of accounts and the reporting formats are duly explained in a Rule Book issued in 1999. However, only few, simpler elements of the new structures are being implemented. A group of IAS-based accounting standards have been officially adopted and are presented in the Rule Book, but existing accounting practices do not actually follow them. In fact, pure cash bookkeeping is in place, supplemented by a fragmented, rudimentary commitment tracking system, not integrated with the overall accounting system.” A separate project financed by USAID, to strengthen financial management in the two governments.

In view of the above, project accounting, on cash basis, will be maintained separately within the PMU. Accounting procedures will be set out in detail in a Financial Management Manual for the PMU. The financial manual covers: (a) the financial management system proposed under the project, with special emphasis on accounting and auditing policies, standards and internal controls; (b) the role of the financial management systems in project management and implementation; (c) the accounting arrangements required for project management, the format for and content of project financial reporting; (d) the auditing arrangements that will be used during project implementation; and (e) budgeting and planning.
Internal Audit.
The PMU has no internal audit function and none is considered necessary given the size of the organization.

External Audit.
The PMU will be responsible for ensuring that project financial statements, special accounts, and Statement of Expenditures (SOEs) are audited by an independent auditor, acceptable to the Bank, in accordance with standards on auditing that are acceptable to the Bank. The annual project audit will be carried out in accordance with the Guidelines for Financial Reporting and Auditing of Projects Financed by the World Bank (March 1982). The audit report will be in a format in accordance with the International Standards on Auditing promulgated by the International Federation of Accountants (IFAC). Participating Utilities will be required to provide annual audited financial statements, according to the terms of reference agreed with the Bank, by independent external auditors acceptable to the Bank. The audited financial statements of the Utilities and of the project will be sent to the Bank within six (6) months of the end of the Government’s fiscal year.

There are government-wide audit arrangements covering all Bank financed projects in Bosnia and Herzegovina (with the exception of revenue earning Entities). The State Ministry of Treasury of Institutions of BiH has recently renewed a 3 year contract (2001-2003) with Price Waterhouse Coopers, Netherlands for the audits of World Bank financed projects. The SWMP will be included on the list of projects audited under the master audit agreement with Price Waterhouse Coopers, Netherlands.

Reporting and Monitoring.
The PMU will maintain financial records for the Project and will ensure appropriate accounting for the funds provided. The PMU will prepare and submit Financial Monitoring Reports (FMRs) in a form and agreed with the Bank. The PMU will also prepare annual project financial statements, in a form acceptable to the Bank, and these will be submitted for external audit. It has been agreed that the PMU will be responsible for designing appropriate financial monitoring reports (FMRs), on cash basis, and preparing FMRs on a quarterly basis. The FMRs will include:

1. Project Sources and Uses of Funds Statement
2. Uses of Funds by Project Activity 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

Information System.
The PMU has purchased and has implemented the software developed by LORA, another Bank-financed project in the Federation. The accounting software system, which uses Visual Basic Database, was developed by the Financial Management Consultant and subsequently enhanced by LORA’s MIS staff. It consists of the following modules: financial, procurement and reporting. The financial modules include 4 sub-modules: Payments, Reports, Other Categories, and Reports by Other Categories. Payments are entered into the system based on disbursement categories. The reporting sub-modules allow the PMU to print detailed reports and financial statements. The procurement module enables the PMU to enter all necessary information on procurement matters. The financial software has adequate security levels. The system meets the Bank’s minimum reporting requirements.
Impact of Procurement Arrangements.
A procurement assessment of Solid Waste Management Project was performed by a Bank Procurement Specialist in March 2002 and the project is classified as high-risk because of weak procurement legislation, particularly the lack of internal controls and anti-corruption measures. To minimize these risks, the Bank will again review the procurement capacity of the PMU during the first supervision mission after credit effectiveness and, if necessary, recommend further strengthening of the PMU. The perceived risk will be mitigated by an increased level of supervision.

3. Disbursement Arrangements
It is expected that the proceeds of the Credit will be disbursed over a period of 5 years, which includes 6 months for the completion of accounts and the submission of withdrawal applications. Because no standard disbursement profile for BiH, the disbursement forecast is based on the Bank’s experience with financing similar projects in other ECA countries, and other projects in BiH. The Credit closing date is expected to be August 31, 2007.

The draft CFAA for BiH recommended that report-based disbursements (previously known as PMR-based disbursements) 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 PIUs; (ii) the shaky banking system; and (iii) the unstable political situation and general governance problems currently affecting BiH.

Disbursements from the IDA Credit will 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 Credit amount of $18 million funded by IDA will be allocated to the Federation of BiH and Republika Srpska as indicated in Table C. Disbursements from the Credit proceeds would be administered by the PMU. The PMU is responsible for retaining supporting documentation for SOEs and making them available to IDA supervision missions, as well as to the auditors.

Table C below sets forth the Categories of items to be financed out of the proceeds of the Credit, the allocation of the amounts of the Credit to each Category and the percentage of expenditures for items to be financed in each Category.
### Table C: Allocation of Credit Proceeds (to be completed after negotiation)

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount of the Credit Allocated (Expressed in SDR millions)</th>
<th>Amount of the Credit Allocated (Expressed in US dollars millions)</th>
<th>% of Expenditures to be Financed</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Civil Works</td>
<td>6,320,000</td>
<td>8,000,000</td>
<td>80%</td>
</tr>
<tr>
<td>(2) Goods</td>
<td>1,900,000</td>
<td>2,400,000</td>
<td>100% of foreign expenditures, 100% of local expenditures (ex-factory costs), 80% of expenditures for other items procured locally</td>
</tr>
<tr>
<td>(3) Services</td>
<td>1,190,000</td>
<td>1,500,000</td>
<td>100% of foreign expenditures, 80% of local expenditures for consultants domiciled within the territory of the Borrower</td>
</tr>
<tr>
<td>(4) Operating Costs</td>
<td>1,150,000</td>
<td>1,450,000</td>
<td>80% until January, 2005, 70% thereafter until Project completion</td>
</tr>
<tr>
<td>(5) Unallocated</td>
<td>3740,000</td>
<td>4,650,000</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>14,300,000</td>
<td>$18,000,000</td>
<td></td>
</tr>
</tbody>
</table>

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$30,000; (ii) contracts for consulting firms valued at less than US$100,000; (iii) contracts for goods costing less than US$100,000; (iv) contracts for works costing less than US$500,000 equivalent each; and v) all incremental operating costs. The minimum size of application for direct payment withdrawals and the issuance of special commitments from the IDA Credit account would be 20 percent of the Authorized Allocation to the Special Account. This documentation will be made available for the required audit as well as to Bank Supervision Missions, and will be retained by the PMU for at least 1 year 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 will establish, maintain and operate, under terms and conditions acceptable to the Bank, one Special Account, denominated in Euro, with two sub-accounts for the accounting purposes of the Federation and RS, respectively. Before a bank is selected to hold the special sub-accounts, the Borrower shall provide sufficient information for IDA to make an
assessment of the true diligence of the bank in question. PMU authorized allocation is limited to Euro 330,000 until withdrawals have reached SDR 2,000,000, which time the authorized allocation could be disbursed.

**Supervision Plan.**
The FMRs for the project will be reviewed on a regular basis by the project FMS and the results or issues will be followed up during the supervision missions. Financial audit reports (project and Utilities) will be reviewed and issues identified will be followed up by the FMS. During the Bank’s supervision missions the project’s financial management and disbursement arrangements (including a review of a sample of SOEs and movements on the Special Account(s)) will be reviewed to ensure compliance with the Bank’s minimum requirements. As required, a Bank-accredited Financial Management Specialist will assist in the supervision process.
Annex 7: Project Processing Schedule

BOSNIA AND HERZEGOVINA: Solid Waste Management Project

<table>
<thead>
<tr>
<th>Project Schedule</th>
<th>Planned</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time taken to prepare the project (months)</td>
<td>24</td>
<td>18</td>
</tr>
<tr>
<td>First Bank mission (identification)</td>
<td>06/18/2000</td>
<td>06/18/2000</td>
</tr>
<tr>
<td>Appraisal mission departure</td>
<td>03/11/2002</td>
<td>03/11/2002</td>
</tr>
<tr>
<td>Negotiations</td>
<td>05/01/2002</td>
<td>05/01/2002</td>
</tr>
<tr>
<td>Planned Date of Effectiveness</td>
<td>09/16/2002</td>
<td></td>
</tr>
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Prepared by:
Government of BiH and World Bank

Preparation assistance:
Peer Reviewers:
Jerome Esmay, Lead Environment Specialist,
Allan Rotman, Sr. Environmental Specialist
Per Wam, Sr. Social Scientist

Bank staff who worked on the project included:

<table>
<thead>
<tr>
<th>Name</th>
<th>Speciality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motoo Konishi</td>
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<tr>
<td>Seema Manghee</td>
<td>Team Leader</td>
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<td>Carl Bartone</td>
<td>Principal Environmental Specialist</td>
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<td>Rita Kleeis</td>
<td>Sr. Environmental Specialist</td>
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<td>Takao Ikegami</td>
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<td>Vesna Francic</td>
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<td>Spyros Margetis</td>
<td>Sr. Environmental Specialist</td>
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<td>Klas Ringskog</td>
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<td>Jagdish Jassal</td>
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<td>Emanuele Santi</td>
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<td>Enar Wennerstrom</td>
<td>Sr. Financial Analyst</td>
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<td>David Webber</td>
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<td>Siew Chai Ting</td>
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<td>Milane Reyes</td>
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</tr>
<tr>
<td>Tamara Noel</td>
<td>Program Assistant</td>
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</table>
Annex 8: Documents in the Project File*

BOSNIA AND HERZEGOVINA: Solid Waste Management Project

A. Project Implementation Plan
Project Implementation Plan, January 2002

B. Bank Staff Assessments
Financial Management System Assessment
Procurement Capacity Assessment

C. Other
Feasibility Study of Solid Waste Management in Herzegovina-Neretva & West Herzegovina Cantons
Technical Study of Solid Waste Management - Tuzla
Organization Study of Solid Waste Management - Livno
Feasibility Study - Banja Luka
National Solid Waste Master Plan - EU Study
Financial Assessment of Utilities
Bosnia and Herzegovina: Solid Waste Management Project - Environmental Assessment and Management Plan
*Including electronic files
Annex 9: Statement of Loans and Credits

BOSNIA AND HERZEGOVINA: Solid Waste Management Project

02-May-2002

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<th>Undisp.</th>
<th>Orig</th>
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Total: 0.00 366.95 0.00 228.88 123.00 0.00
# Bosnia and Herzegovina

## Statement of IFC's Held and Disbursed Portfolio

*Jan - 2002*

In Millions US Dollars

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<td>1998</td>
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**Total Portfolio:**

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## Approvals Pending Commitment

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<th>Equity</th>
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**Total Pending Commitment:**

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<th>Quasi</th>
<th>Partic</th>
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<td>3.09</td>
<td>0.00</td>
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Annex 10: Country at a Glance

BOSNIA AND HERZEGOVINA: Solid Waste Management Project

POVERTY and SOCIAL

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<th>2000</th>
<th>Bosnia and Herzegovina</th>
<th>Europe &amp; Central Asia</th>
<th>Lower-middle-income</th>
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<tbody>
<tr>
<td>Population, mid-year (millions)</td>
<td>3.9</td>
<td>476</td>
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<tr>
<td>GNI per capita (Atlas method, US$)</td>
<td>2,010</td>
<td>1,140</td>
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<tr>
<td>GNI (Atlas method, US$ billions)</td>
<td>956</td>
<td>2,327</td>
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</table>

Average annual growth, 1994-00

| 1.3 | 0.1 | 1.9 |
| 1.0 | 0.8 | 1.3 |

Most recent estimate (latest year available, 1994-00)

| Poverty (% of population below national poverty line) | 43 | 67 | 42 |
| Life expectancy at birth (years) | 73 | 69 | 69 |
| Infant mortality (per 1,000 live births) | 13 | 21 | 32 |
| Child malnutrition (% of children under 5) | ... | ... | 11 |
| Access to an improved water source (% of population) | 90 | 80 | 80 |
| Literacy (% of population age 15+) | 3 | 15 | 15 |
| Gross primary enrollment (% of school-age population) | 100 | 114 | 114 |
| Male | 101 | 116 | 116 |
| Female | 99 | 114 | 114 |

KEY ECONOMIC RATIOS and LONG-TERM TRENDS

1980 | 1990 | 1999 | 2000 | Growth (average annual growth)

GDP (US$ billions) | ... | ... | 4.5 | 4.4 |
Gross domestic investment/GDP | ... | ... | 20.6 | 20.4 |
Exports of goods and services/GDP | ... | ... | 28.5 | 27.1 |
Gross domestic savings/GDP | ... | ... | -13.0 | -10.9 |
Gross national savings/GDP | ... | ... | -0.8 | -0.2 |
Current account balance/GDP | ... | ... | -21.4 | -20.7 |
Interest payments/GDP | ... | ... | 1.1 | 1.3 |
Total debt/GDP | ... | ... | 48.1 | 48.7 |
Total debt service/exports | ... | ... | 10.8 | 18.7 |
Present value of debt/GDP | ... | ... | ... | ... |
Present value of debt service/exports | ... | ... | ... | ... |


GDP per capita | 27.3 | 10.0 | 5.8 | 6.0 |
GDP per capita | 24.8 | 6.8 | 4.7 | 5.5 |
Exports of goods and services | 41.8 | -3.9 | 4.2 | 5.6 |

STRUCTURE of the ECONOMY

1980 | 1990 | 1999 | 2000 | Growth (average annual growth)

(% of GDP)

Agriculture | ... | ... | 13.8 | 12.2 |
Industry | ... | ... | 25.2 | 26.0 |
Manufacturing | ... | ... | 15.4 | 15.8 |
Services | ... | ... | 61.0 | 61.8 |
Private consumption | ... | ... | ... | ... |
General government consumption | ... | ... | ... | ... |
Imports of goods and services | ... | ... | 60.1 | 57.9 |


Agriculture | 8.1 | -3.0 | -8.3 | ...
Industry | 26.2 | 11.2 | 5.7 | ...
Manufacturing | 17.1 | 0.1 | 7.2 | ...
Services | 37.9 | 17.5 | 7.9 | ...
Private consumption | ... | ... | ... | ...
General government consumption | ... | ... | ... | ...
Gross domestic investment | 35.6 | 9.9 | 4.4 | ...
Imports of goods and services | 21.6 | -3.1 | -5.9 | ...

Note: 2000 data are preliminary estimates.

* The diamonds show four key indicators in the country (in bold) compared with its income-group average. If data are missing, the diamond will be incomplete.
Bosnia and Herzegovina

PRICES and GOVERNMENT FINANCE

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<th>1999</th>
<th>2000</th>
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<td>Consumer prices</td>
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**Government Finance**

(% of GDP, includes current grants)

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<td>Overall surplus/deficit</td>
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<td>-17.4</td>
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TRADE

(US$ millions)

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<td>Total imports (cif)</td>
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BALANCE of PAYMENTS

(US$ millions)

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<th>2000</th>
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<td>Imports of goods and services</td>
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**Memo:**

Reserves including gold (US$ millions)

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<th>2000</th>
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Conversion rate (DEC, local/US$)

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EXTERNAL DEBT and RESOURCE FLOWS

(US$ millions)

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Composition of net resource flows

| Official grants | | | | |
| Official creditors | | | 118 | -46 |
| Private creditors | | | 0 | 4 |
| Foreign direct investment | | | | |
| Portfolio equity | | | | |

World Bank program

| Commitments | | | 163 | 41 |
| Disbursements | | | 68 | 44 |
| Principal repayments | | | 0 | 0 |
| Net flows | | | 68 | 44 |
| Interest payments | | | 36 | 36 |
| Net transfers | | | 32 | 8 |

Development Economics 10/11/01

- 81 -
Popular attitudes Toward regional (central) Landfills

Based on the results of focus groups and in-depth interviews, it is evident that the attitude toward the rehabilitation of a central landfill for the entire city (Mostar) or the entire Canton (Herzeg-Bosnia and Tuzla Canton) in their municipality and in close proximity to their settlement is more positive among residents in settlements in which a legal (city) landfill is already operating. Popular attitudes toward the rehabilitation of central landfills in the proximity of their settlement is more positive in settlements that are closest to the Uborak landfill than in other parts of the City of Mostar. In contrast, respondents from the settlements closest to the Koricina landfill (municipality of Livno, Herzeg-Bosnia Canton) expressed a greater level of opposition to rehabilitation of a central landfill in proximity to their settlements. In the Tuzla Canton, in settlements closest to the Višić landfill, residents vehemently oppose the rehabilitation (modification of the existing) landfill in the close proximity of their settlements among residents in settlements closest to the Lukavacka Rijeka landfill.

Respondents in settlements with a large number of wild rubbish dumps are less receptive to the rehabilitation of a new landfill; resistance to the creation of a new way of disposing waste in proximity to their settlements (i.e. a new landfill). Respondents residing in settlements in close proximity to existing landfills have grown accustomed to the presence of the site, and if closer attention were paid to maintaining high technical and ecological standards in the operation of the landfill, those residents were willing to accept the advantages and disadvantages of the existence of the landfill. Residents in these areas are more willing to accept the expansion of the existing landfill on the condition that it be conducted in accordance with international standards. Residents do not support the idea of the “wild” dumpsite located close to their homes being transformed into a legal “official” landfill even if it were a properly rehabilitated, regulated, and managed landfill. Given the various negative effects suffered by this population as a result of existing “wild” or “half-wild” landfills, and the negative experiences and hardships they have encountered in trying to access, speak to, and reach some form of agreement with, the “responsible persons” in authority, there is a high level of distrust among these people in relation to the existence or regulation of any type of rubbish dump close proximity to their homes.

Industry representatives do not oppose the rehabilitation of a new landfill, rather they welcome the idea because they are aware of the fact that the proposed landfills will be in accordance with ecological standards and that this is a positive change. They are not, however, in a financial position to pay more for improved services.

Respondents believe that the municipality that will contain the new landfill should receive some form of compensation from other municipalities utilizing the services of the site. The compensation that is considered to be most appropriate would be in the form of financial payments. In Mostar, respondents consider that the construction of a factory for the recycling of waste on the territory of the municipality would be appropriate compensation. In the settlements of Bijelo Polje and Vrapcici located closest to the Uborak landfill in Mostar, the respondents consider that better health protection and any additional financial resources to the settlement would be an appropriate form of compensation.
Most Important Problems Facing Respondents

Environmental protection was not cited by respondents as one of the main problems currently being faced by themselves and their families. Lack of money and the economic situation of the country are seen as the most important problems today. Residents in the settlements closest to the Višca landfill (Tuzla Canton), however, put much more importance on environmental issues, due to the real effects of the existence of the landfill and the burning-off by SFOR in close proximity. The two most important issues facing these communities are the unregulated removal and dumping of rubbish, and the pollution of the natural environment. When asked directly about ecological issues in their community, respondents in all locations highlighted the inadequate collection and dumping of rubbish as the main threat to the environment.

Given that focus group discussions were conducted in settlements located closest to existing landfills, it is not surprising that the key environmental issues for these respondents related to the collection and dumping of waste. This issue holds a priority position in the lives of these people, along with the bad economic situation, unemployment and material insecurity. Waste collection and disposal is ranked high as an area of concern, but (with the exception of the settlements closest to the Višca landfill, Tuzla Canton) always follows economic issues. Once respondents start to discuss negative effects of existing waste disposal practices, it is clear residents are aware that problems exist. Problem mentioned include the increased risk of direct infections of animals and humans, through pollution of water ways that are used for drinking and/or technical water, air pollution primarily caused by burning of waste, to the detrimental effects on flora and fauna, and subsequently on local populations.

None of the industry representatives interviewed considered the management of solid waste to be among the top three priority problems they face today. Industry tends to deal with the disposal of solid waste in one of two ways: part of their waste is collected by the municipal waste collection service and dumped at the city landfill, the remainder (technical waste) is managed and disposed of by a particular department in the enterprise. It is important to note that in the in-depth interviews conducted with directors or responsible persons in industrial enterprises in Tuzla, it is evident that they are wary of topics relating to ecology and the lack of respect for environmental protection standards. In many cases, interviewees were not familiar with the final destination of waste produced by their enterprise and were not well informed about possible waste management solutions. Responsible persons in the industries displayed only a limited knowledge of the waste management issue, and rarely had any insight into the global picture or the industry policy for solid waste management in the future.

Current Waste Disposal Practices

Almost all residents who live in areas where waste collection services are available, use those services. The coverage of the rubbish collection services varies across locations and within specific locations. Rural areas are generally less covered by rubbish collection services – there are no containers in which to deposit rubbish, most often designated places to deposit rubbish are absent, and rubbish truck collection does not exist. For these reasons, rural residents tend to dump waste in “convenient” natural quarries (“wild dumps”) or burn off their waste on their own property.

Additionally, and primarily in areas not covered by rubbish collection services, houses destroyed in the war are often used as improvised rubbish dumps (despite being located within settlements). Furthermore, (in the case of return of pre-war residents) the problem of disposal of construction waste materials resulting from the repair of devastated housing has not been managed; this waste is most often dumped in the nearest unused/deserted property. The dumped construction material then forms the basis for further dumping of rubbish in these locations.
Industries have different practices for managing the solid waste they produce. Ordinary waste is generally collected and disposed of by the municipal rubbish collection service; industry management has very little knowledge (or interest) in how this waste is finally disposed of. In relation to technical/industrial waste, all of the industries visited have a plan for recycling or commercial utilization. Still, current practices indicate that only a small percentage of the industrial waste is in fact utilized in the projected manner. Most of this industrial waste ends up being deposited on unused land owned by the industry (most often natural quarries) that after they are filled are covered over with dirt and sand in an attempt to return the land to its primary state. Industry interviewees consider that the collection and removal of industrial solid waste to legal, environmentally sound landfills would be welcome. These industry representatives consider that their own dumps are of a limited capacity and are not a sustainable solution in the long term. Yet, because they have an interim solution for the disposal of industrial solid waste, they do not wish and are unable to pay commercial prices for regulated disposal. This prevalent attitude will remain until there is legal regulation that obliges them to do so.

Rubbish Collection Enterprises

Overall, improvement in the operation of rubbish collection and disposal enterprises is considered to be an important issue for respondents. All those interviewed consider that the current “management” of solid waste is not efficient or effective. They are aware of the weaknesses in all of the phases of the operation of the service: insufficient number of containers, vehicles, staffing, nonexistence of a regulated landfill or shortcomings of an existing central landfill (too few; not in accordance with ecological standards in the construction and maintenance; inadequate treatment of rubbish once dumped due to lack of mechanization and other required resources; non-sorting of deposited waste; no recycling of recyclable waste), low percentage of payment collection for services, and inadequate market orientation of rubbish collection services (rather a heavy reliance on funding through the municipal budget). Group discussion participants describe this as an “enchanted cycle” that results in the poor operation of the rubbish collection service and dissatisfaction of citizens with the service.

As respondents largely state that they are generally satisfied with the work of the rubbish collection service in their settlement, they believe there could be significant improvement if assistance could be provided to the existing services. To improve these services, respondents suggest the modernization of enterprises, employment of additional personnel, more frequent rubbish collection, placement of more containers, and the purchase and utilization of a greater number of rubbish collection vehicles.

Citizens are accustomed to the rubbish collection and disposal services being provided by the municipal service. Nevertheless, in general respondents are rather indifferent to whether these services should be provided by a public or private enterprise.

The majority of respondents currently using rubbish collection and removal services pay for those services. Those who do not pay do not because they do not have the money to do so or because of the quality of services received is lacking. Those that do not pay for services did not report any interruptions in service due to their delinquency in payment. The majority of respondents understood the correlation between the unwillingness of service users to pay and the poor quality of the service and are prepared to pay somewhat more for a better quality of service (on the condition that they can afford it and the price charged is reasonable).
Wild Dump Sites

It is difficult to ascertain the precise number of wild dumpsites in the various locations, but it is clear from data collected that wild dump sites are numerous. The majority of persons surveyed report a number of "wild" dumpsites in close proximity to their settlement. In the focus group conducted with residents from settlements close to central (legal) landfills (Bijelo Polje, Mostar), but where the collection, removal and disposal of rubbish is not adequately managed (neither by coverage or quality of service), participants estimate that 95% of rubbish ends up in "wild" dumpsites. In other locations, the number of sites and volume of rubbish estimated to be dumped in "wild" dumpsites exceeds that in central (legal) landfills.

Sources of Information

The majority of people get their information about news and events in their communities through discussions with neighbors, work colleagues and during meetings of the local religious community (congregations). News and information more generally (region, entity, state) is sought from television, radio, and print media.

Water Supply

The vast majority of respondents connected to a piped water supply. The majority of those interviewed pay the water usage bill. Some areas do not have any problems with interruption to regular water supply, but many settlements suffer from intermittent or regular interruptions of their piped water supply. The settlement of Bijelo Polje, Mostar is partially serviced by the water supply network, but even those who are connected to this network do not have a regular supply. As a result of insufficient volumes of water, reductions are frequent, particularly in the summer period. The rest of the population in this settlement use well water. Illegal connections to the water supply network and the uncontrolled use of water for watering crops during the agricultural seasons compounds the problem of insufficient water supply. Dissatisfied residents then rarely pay the water usage bills as a sign of protest. Very few residents of Mesihovina or the Municipality of Tomislavgrad are connected to the water supply system. Supply of potable water is mainly organized through cistern delivery (generally private suppliers). The water supply company realizes a low level of water usage bill collection, while private cistern operators demand pre-payment for their services. On the basis of discussions with enterprise representatives and residents of the Neighborhood Council (MZ) it is evident that the water supply in the Municipality of Tuzla is one of the more acute issues in the area. Respondents in areas experiencing problems with water supply and service are more willing to pay more for water supply on the condition that the quality and supply of piped water.

Sewage

A majority of surveyed areas consist of households that are not connected to a sewage network. From the group discussions it is evident that the problem of septic waste it managed through the construction of septic pits/tanks. Because the septic pits/tanks have not been constructed in an organized or planned way, in most cases every household constructs their own septic pit/tank. This situation leads to a series of problems that hinder the efficient functioning of the system. Participants are aware of the detrimental effects of the current practice and stress the need for broadening the sewage network system to include areas that are not currently serviced.
Research Objectives

The purpose of this social assessment is to collect quantitative and qualitative data about the attitudes, opinions and habits of stakeholders to inform the design and implementation of the ‘Environmental Infrastructure Protection Project’. This social assessment was conducted in recognition of the need for public acceptance of the rehabilitation of landfills and acceptance of waste from other municipalities in a location close to residential sites. This process requires extensive public consultation and awareness campaigns.

On the basis of data collected, recommendations will be made for the design of communications strategy through which key stakeholders will be informed of the plans, progress and results of the project.

Utilizing the methods of public opinion polling, focus group discussions, and in-depth interviews, data was collected on the current rubbish collection and removal services and opinions about the improvement of these services, and other related issues.

The social assessment is intended to collect important data concerning current use of services, perceptions of quality, coping strategies and willingness to pay for improved services. The general categories investigated are:

- Type of solid waste and water supply
- Areas covered by collection for solid waste
- Levels and determinants of solid waste services/water availability/access and non-availability
- Expenditure for solid waste and water and willingness to pay for these services
- Coping strategies
- Perceptions of solid waste services and water quality
- Values and perceptions of solid waste services; link with health and environment
- Value of solid waste and water services compared to other utilities/municipal services
- Perception of rights to reliable solid waste services and water supply
Background

The Solid Waste Management foresees the establishment of a sanitary solid waste management system organized at regional level. To be sustainable, the project must be understood and supported by the people affected by it. People are also encouraged to pay for the associated fees, as the existing low willingness to pay for solid waste management services both for households, industries and hospitals in the majority of the municipalities could endanger the financial sustainability of the project and of the new Utilities. Widespread use of wild dumpsites also requires a special attention.

The Communication strategy

A two-layered Communication Strategy is being developed. A general countrywide communication program will create awareness about solid waste management and the concept of multi-municipal landfills, putting a major effort in developing communication capacity at Ministry level and solid waste Utilities. Regional campaigns will address specific issues in the landfill areas.

Objectives and activities

The objective of the communication strategy is twofold.

1. First it aims at obtaining social consensus on the project. People will be helped understand the negative implications of wild dumpsites, of the existing solid waste management system and see the new initiative as a solution. In particular the strategy envisages the following activities:

   - Awareness raising activities on the need for adequate collection and disposal of household refuse, health and environmental problems caused by inadequate waste disposal
   - Information to the public on the on-going process within a clear and non-contradictory vision on project’s long-term objectives
   - Strengthening communication capacity within the Ministry of Environment of both Entities
   - Build media understanding and support on the project

2. Second, it aims to ensure long-term sustainability of the project, by enabling service users to support the new scheme and cooperate constructively. People need to feel responsible for the project’s success and sustainability and motivated to pay the fees associated to the new solid waste management system. In particular the strategy will contemplate the following actions:

   - Informing people about the project
   - Explaining the advantages of the regional landfills
   - Building constructive and transparent relations with the Utilities
Central Level

Part of the program is organized at Entity level with the largest coordination possible among the Federation of Bosnia Herzegovina and the Republica Srpska

**Primary Audience/Segment 1: General Public** People are informed about the negative health and economic impacts of the status-quo and informed about the project and the government commitment. **Activities:** Radio and TV spots on environment, Articles on newspapers, Project presentation on TV

**Primary Audience/Segment 2: Ministry of Environment.** The Ministries of Environment of the two Entities are assisted in positioning the project on the political agenda and in providing homogeneous and non-contradictory messages, along with a clear vision. A major capacity building effort will also ensure better communication flows with local authorities. **Activities:** Training, Press Releases, Speeches and interviews preparations.

**Secondary Audience: Media.** Environmental issues are not adequately covered by the Media. This concerns both the scope and the quality of coverage. However Media are increasingly a very powerful instrument to convey political messages. Within the communication strategy, Media are facilitated in delivering clear messages on the project and become fully involved in the awareness raising efforts. **Activities:** Press Conferences, Interviews, Articles, TV spots.

Regional Level

Part of the communication program is conducted at local level in the areas where the project operates.

**Primary Audience/Segment 1: Municipalities’ Residents.** The residents of the municipalities involved in the project are those most affected by the project. The project and its deriving benefits are explained to residents, inviting them to accept it and contribute actively to its sustainability, through increased bill payment. Special attention is given to the population living close to the regional landfills and to those who are currently using wild dumpsites. **Activities:** Local TV and Radio spots, Leaflets, Public Education activities and Information on Utility bills.

**Primary Audience/Segment 2: Industries and Hospitals.** Industries and hospitals are among the most important clients of the new solid waste Utilities. The financial sustainability of the project depends on them. The communication strategy aims at increasing their payments rates. **Activities:** Meeting with the local authorities, Utility bills.

**Secondary Audience/Segment 1: Civil society organizations.** Several are already active in the field of environment and have specifically dealt with the solid waste issue. Their acceptance of the project and their active role is key to gain the widest support by the population. **Activities:** Civil society workshops, distribution of leaflets, Public Education Activities.

**Secondary Audience/Segment 2: Solid Waste Utilities.** Solid waste Utilities need to renew their image and show their commitment to improved services. A message of transparency and good services should be provided to citizens. **Activities:** Information on the Utility bills and customer relations.

**Secondary Audience/Segment 3: Local authorities.** Local authorities should ensure the enforcement of SWM legislation, outlawing and punishing wild dumping practices. **Activities:** Increased controls and information on legislation.
## Communication Program Activities and Schedule

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<th>Target Audience</th>
<th>Activities</th>
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Tuzla Canton

Tuzla is one of the ten Cantons in BiH. It is located in the Northeast portion of the country and is composed of 13 municipalities. These municipalities are: Tuzla, Lukavac, Gradacac, Gracanica, Doboj East, Srebrenik, Celic, Teocak, Sspana, Kalesija, Zivinice, Banovici, and Kladanj. Each municipality has its own Communal Enterprise, that is charged with collecting and disposing of solid waste. The largest city in the Canton is Tuzla, with 200,000 inhabitants. Tuzla is the administrative center for the Canton and a very developed industrial zone. Due to the large amount of industrial activities that occurred in this region before the war, Tuzla is now facing severe environmental problems. Emission of air pollutants in the atmosphere cause low air quality emissions into the surface waters leading to poor water quality and depletion of subsurface resources by salt caused geological degradation. Dumpsites for industry as well as municipal waste are located throughout the Canton and not usually properly managed.

The Tuzla region has a large number of non-engineered landfills (essentially open dumpsites with soil covering) as well as wild dumpsites throughout the 13 municipalities. The solid waste management system is highly disorganized with no proper and strictly enforced control. Some dumpsites are in close proximity to surface waters but their effect on groundwater is largely ignored. The point of interest regarding Tuzla is the fact that Lake Modrac is a designated drinking water source so it is important the ensure safety of the water supply. The two suggested landfills for the project site are both located in former surface pits from the mining industry. They are located in areas sufficiently removed the Lake with one “Visca” located upstream and one located downstream, near a small village. This site is also located next to a large artificial lake made by the mining processes. The environmental impacts on water quality and village residents are taken into particular account in the environmental management plan (EMP) found in Section VIII.

Herzegovina Neretva Canton

The Mostar region, encompasses two Cantons in BiH, Herzegovina-Neretva Canton and West-Herzegovina Canton. Within these two Cantons, 12 municipalities are included. The largest city in this region is Mostar, with more than 100,000 inhabitants. Mostar is now the administrative center of the Herzegovina-Neretva Canton. It also has a university, and before the war, had a well-developed industries. The major companies were Aluminij (aluminum electrolysis industry, Soko army aircraft industry, Hepok agricultural complex and textiles.

The major environmental issue in this region is protection of the Neretva River, a landmark tourist attraction, source of hydropower and an important water resource. Neretva is also very important for agricultural irrigation and also used as a drinking water supply, both for BiH and neighboring Croatia. The Neretva flows through almost the entire Canton, Croatia and discharges into the Adriatic Sea.

Within the Mostar region, are a number of non-engineered landfills (legal) and wild dumpsites. None of these sites has pollution-prevention measures that would safeguard the environment or the health and welfare of the local population and animals. Mostar itself is divided into six city municipalities, West, South-West, South, North, South-East and Stari Grad. Within these six city municipalities two public works organizations are functioning. Parkovi, which is in charge of waste collection for West, Southwest
and South and does not have an engineered landfill as a final disposal site. Komos, the proprietor of the Uborak landfill that operates in the municipalities of North, South East and Stari Grad. Komos is 49% privatized but there is no clear definition of the percentage of Uborak landfill that is privatized.

The Uborak landfill site, which is to be rehabilitated under the project, is a fully engineered landfill. Donors have provided several millions dollars of investments for Uborak. The pit is lined with impermeable foils, gas release pipes are installed and there is a leachate collection-circulation system. The landfill encompasses an area of 7 hectares, with an additional 4.2 hectares designated for recycling and another 8 hectares for future expansion of the landfill. Uborak also has an incinerator on site, which is not equipped with exhaust fumes treatment. The capacity of the existing pit is 440,000 m³ while the daily amount deposited amounts to 30 tons. Uborak is located some 10 km from Mostar, off the main road – M 17.

It is a fair distant from the road. The nearby villages, for the most part, were abandoned during the war, and there are no public institutions or designated public areas in the vicinity except for the military barracks (Federation Army BiH) located in the immediate proximity. The landfill is free of any old war materials, explosives, mines and weapons.

**Banja Luka**

Municipal solid waste from heavily populated parts of the city of Banja Luka is currently being disposed of at Crkvine landfill in Ramici village, which is about 10 km from the city center. In addition to receiving waste collected from metropolitan Banja Luka, this landfill also receives waste from neighboring municipalities, such as Lakstasi and Prnjavor.

This site is envisaged as a regional sanitary landfill that would serve the Banja Luka (population: 207,927) and seven other municipalities. The seven include three smaller towns: Celinac (pop: 17,494), Kotor Varos (pop: 15,410), and Knezevo (pop: 13,365). The four remaining municipalities are somewhat larger: Gradiska (pop: 59,494), Lakstasi (pop: 33,710), Prnjavor (pop: 41,985), and Srbac (pop: 24,044). The total population of the seven municipalities is 205,502, and, including Banja Luka, is 413,429.

To be able to serve this population, the Banja Luka landfill requires several improvements. The leachate and rainfall collection system has been blocked and must be repaired. The danger of landslide at part of the landfill, in which waste disposal has stopped, must be alleviated. Because there is no regulated peripheral drainage channel for rainfall coming from above the landfill, one must be built. A waterproof lining must be inserted at the bottom of the landfill; otherwise, leachate infiltrates soil and the Glogovac stream, which pollutes underground water and ground water in rivers downstream from the landfill. There are no leachate treatment facilities, which must be built.

Other deficiencies must also be addressed. There is no gas collection system, which poses the continuing potential danger of explosion. There is no adequate green protection belt of trees and other plants around the landfill. Also, there is a lack of necessary auxiliary facilities at the landfill (reception and control point, weighbridge for measuring the weight of received waste, vehicle disinfection and washing equipment, offices for landfill management and workers, adequate area for an animal graveyard, adequate protection fence, etc.).

Finally, there is no system for continuous monitoring of underground water quality in the vicinity of the landfill. This system is necessary to detect underground water pollution in a timely manner, and to enable authorities to undertake disinfection and other necessary protection measures.
MAP SECTION
IMAGING

Report No.: 23929 BIH
Type: PAD