

The Priority Environmental Investment Programme for South Eastern Europe (PEIP)

Speeding up Investments in the Waste Sector

A Manual for Waste Utilities
in South Eastern Europe



REGIONAL ENVIRONMENTAL CENTER

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REGIONAL ENVIRONMENTAL CENTER

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The Regional Environmental Center for Central and Eastern Europe (REC) is a non-partisan, non-advocacy, not-for-profit international organisation with a mission to assist in solving environmental problems in Central and Eastern Europe (CEE). The REC fulfils this mission by promoting cooperation among non-governmental organisations, governments, businesses and other environmental stakeholders, and by supporting the free exchange of information and public participation in environmental decision making.

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ADB	Asian Development Bank
BiH	Bosnia and Herzegovina
BMW	Biodegradable municipal waste
CEE	Central and Eastern Europe
EC	European Commission
EAR	European Agency for Reconstruction
EEC	European Economic Community
EIA	Environmental impact assessment
EIB	European Investment Bank
ELV	End-of-life vehicle
EPEEF	Environmental Protection and Energy Efficiency Fund
EPF	Environmental Protection Fund (Serbia)
ETC RWM	European Topic Centre on Resource and Waste Management
EU	European Union
EUR	Euro
FBiH	Federation of Bosnia and Herzegovina
FMET	Ministry for Environment and Tourism, Federation of Bosnia and Herzegovina
IBRD	International Bank for Reconstruction and Development
IDA	International Development Association
IFI	International financial institution
IMPE	Inter-municipal public enterprise
IPA	Instrument for Pre-accession Assistance
IWMS	Integrated waste management system
JICA	Japan International Cooperation Agency
GDP	Gross domestic product
KfW	Kreditanstalt für Wiederaufbau (a German bank)
KTA	Kosovo Trust Agency
MBT	Mechanical biological treatment
MISP	Municipal Infrastructure Support Programme (Serbia)
MSW	Municipal solid waste
MSWM	Municipal solid waste management
MoEFWA	Ministry of Environment, Forestry and Water Administration, Albania
MoEPPC	Ministry for Environmental Protection, Physical Planning and Construction, Croatia
MoESP	Ministry of Environment and Spatial Planning, Serbia
MoPWTT	Ministry of Public Works, Transport and Telecommunications, Albania
MoTEP	Ministry of Tourism and Environmental Protection, Montenegro

MUCE	Ministry of Urbanism, Civil Engineering and Environment, Republika Srpska
NGO	Non-governmental organisation
NEAP	National environmental action plan
NEIS	National Environmental Investment Strategy, the former Yugoslav Republic of Macedonia
NIMBY	“Not in my backyard” syndrome
NIP	National investment plan
NSEA	National strategy for environmental approximation
NWMP	National waste management plan
NWMS	National waste management strategy
OECD	Organization for Economic Cooperation and Development
PEIP	Priority Environmental Investment Programme for South Eastern Europe
PFS	Pre-feasibility study
PIU	Project implementation unit
PMU	Project management unit
PPIAF	Public-Private Infrastructure Advisory Facility
PPP	Public-private partnership
PSP	Private sector participation
PUC	Public utility company
REC	Regional Environmental Center for Central and Eastern Europe
RS	Republika Srpska
RWMC	Regional waste management centre
SEE	South Eastern Europe
SEPA	Serbian Environment Protection Agency
SIDA	Swedish International Development Cooperation Agency
SWM	Solid waste management
SWMMP	Strategic waste management master plan
SWMP	Solid waste management project
SWMS	Solid waste management strategy
UK	United Kingdom
UNDP	United Nations Development Programme
WB	World Bank
WEEE	Waste electrical and electronic equipment
WFD	Waste Framework Directive
WLD	Waste Landfill Directive
WM	Waste management
WMC	Waste management centre

Preface

The manual *Speeding up Investments in the Waste Sector* was drafted within the Priority Environmental Investment Programme for South Eastern Europe (PEIP). One of the main goals of PEIP is to facilitate investments in key areas such as waste, water and air. Behind the manual is the firm belief of the authors that sustainable environmental investments in the waste sector are only possible if they are implemented by strong, professional and politically independent utilities. This view has been recognised by the South Eastern European (SEE) countries and the idea of the manual was endorsed at the PEIP regional meeting in Budva, Montenegro, in June 2008.

The manual is based on the assumption that lack of proper strategic planning and the insufficient capacity of the utilities are the main bottlenecks to investments in waste infrastructure, rather than a lack of funding. Stronger utilities functioning in well-planned regional systems are, and will be, able to attract and make full use of more EU and bilateral donor grant funds as well as funds from international financial institutions (IFIs) and other commercial banks.

The unblocking of investments in municipal solid waste (MSW) management will bring countries closer to compliance with the EU environmental acquis, that is, the major, investment-heavy Waste Landfill Directive and the new Waste Framework Directive. And, of course, the ultimate goal is better services for the population with the accompanying environmental and health benefits.

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Introduction

National strategic planning, policy setting and legislation in SEE countries are currently more often than not insufficient to ensure compliance with the requirements of the EU waste directives. Existing national waste policy is not sufficiently developed, nor does it address all key areas of performance. There is no clear strategic basis for determining either priorities for investment, or performance requirements and targets. Required standards for waste management therefore remain difficult to implement and enforce.

There is a lack of national initiatives to minimise waste at domestic and industrial level, and waste producers remain unaware of potential opportunities for, and the benefits of, waste prevention. Information on opportunities and techniques for waste prevention is not generally available and the true costs of environmentally sound waste management are not covered by waste producers. Resources, including resources for waste management, are not being used effectively.

The level of waste collection, transportation, treatment and disposal is below that required for compliance with EU standards. The available facilities and capacities for the treatment and disposal of wastes are inadequate; legislation and standards are not effectively enforced; and current waste management practices are contributing to the pollution of air, water resources and land.

Investments in municipal solid waste (MSW) infrastructure in South Eastern Europe (SEE) are urgently needed in order to reduce the pressure on the environment that results from indiscriminate dumping and from the depositing of waste in landfills with low or no standards. This pressure is exacerbated by the increased generation of MSW associated with GDP growth during the years before the economic crisis, and with the accompanying growth in private consumption.

Municipalities and the public utilities they operate are the proponents of MSW management investments, therefore all potential financiers — the European Commission, bilateral donors and IFIs — are keen to scrutinise their capacity and their readiness to implement new investments.

While the planning and overall supervision of waste management is the responsibility of central government, it is the municipalities that provide municipal waste management services on the ground. The implementation of EU legislation implies that municipalities will or may be involved in activities such as raising significant capital sums, tendering for construction projects, providing a range of waste management services, financial management, negotiating with private sector service providers, devising effective cost recovery charging systems etc.

From an institutional point of view, MSW management is even more demanding than water and wastewater management: based on good international practice it has been shown that it is more economically viable to organise waste management systems over larger territories covering a bigger number of inhabitants. This is because modern landfills are expensive facilities and a minimum volume of waste is needed to justify their construction. At the same time, in the SEE region there is no tradition of municipalities jointly solving their MSW problems by establishing inter-municipal bodies. This is and will remain a big challenge to MSW management in the near future, since sound and responsible financial management that meets recognised international standards will be a prerequisite for any technical improvements in infrastructure. Instruments and mechanisms will have to be put in place that allow for lasting cooperation between municipalities since EU-compliant landfills are only viable for regional systems that apply economies of scale.

Currently, the waste sector is also facing serious challenges and pressures related to EU accession. Besides addressing health issues, investments are needed in order to reach compliance. In reality, as all SEE countries are either candidates or potential candidate countries, the EU accession process is the main driver for the reform of national waste management systems. It can be argued that it is an even stronger driver than health and environmental concerns.

It should be of the utmost importance for national governments to embark on the reform of their waste sectors. Most countries have already adopted the necessary strategic documents – strategies and waste management plans – but only a few countries are already putting these into practice. Impetus and guidance from the national government is indispensable.

However, a great deal depends entirely on the public utilities themselves. They will be able to face all the challenges ahead simply by improving their basic operations. Their chances of success increase the more flexible they are and the more open they are to cooperating with other utilities in order to find optimal solutions for the new integrated waste management systems (IWMS).

The present manual focuses mainly on MSW management and on efforts to reach compliance with the Waste Framework Directive (WFD) and the Waste Landfill Directive (WLD). The importance of other waste streams is acknowledged, although they are not dealt with separately or in detail. The related topics of separate collection and recycling are also addressed.

This manual is targeted mainly at practitioners in the utilities and the local governments and tries to incorporate their perspective. However, national policy makers, financiers, NGOs and customers might also find it useful.

The Priority Environmental Investment Programme for South Eastern Europe (PEIP) has been designed to facilitate investments in waste and water. Our belief is that this manual will play a significant role in guiding waste utility managers in undertaking partial or more comprehensive reforms. Only after utilities have reached certain management and cost recovery benchmarks will they be ready to attract funding for infrastructure investments. The better organisational and fi-

nancial health of the utilities will also serve as a guarantee that the newly built infrastructure will be utilised in an optimal way and will be able to bring about the intended environmental benefits for the population. There are examples in the region illustrating that the availability of newly built infrastructure without the necessary institutional and system-wide support does not lead to proper MSW management practices.

While the manual was being drafted the global economic crisis deepened, leaving hardly any area of life unaffected. Some of the problems faced by the utilities are escalating as a result of the crisis – for example the non-payment of bills, reduced access to loans, fewer national subsidies and greater budget deficits. Banks and investors often have less capital, and the devaluation of Central and Eastern European (CEE) currencies can also be observed, putting additional pressure on loan repayments. As a result, financiers are less inclined to take big risks and would rather invest in solid and well-managed operations. Under these new circumstances, reform proposals are even more relevant today than they were a year ago.

The available literature focuses on various aspects of the complex of measures relating to MSW management. However, until now there has been no single text combining all the relevant and urgent measures required by waste utilities in SEE, and it is this gap that the present manual aspires to fill. It also attempts to tailor the necessary interventions to the concrete needs of the countries in the SEE region.

Waste management in the region is currently driven by the EU accession process. Although the countries in the region fall into two groups – candidate countries and potential candidates – their common policy goals are already aligned to a large extent with the policy goals of the European Union.

Chapter 1 provides a brief overview of the main EU waste management policies, including the main principles and investment requirements. It addresses the EU Thematic Strategy on the Prevention and Recycling of Waste as well as major EU directives such as the Waste Framework Directive, the Waste Landfill Directive, the Waste Packaging Directive and the Hazardous Waste Directive.

In Chapter 2, the authors give an overview of the situation in the countries in the region. The overview is based on information collected in the framework of other activities within PEIP, but also on a short survey carried out in the region in February and March 2009. Unfortunately, the information is not always consistent across the countries.

Chapter 3 deals with the financial challenges in relation to compliance with EU legislation. It tackles the issues of extending MSW services, landfilling and closing existing dumpsites and the related investments. It identifies the immediate improvements needed in the region, including the closure of old dumpsites and the setting up of separate collection and recycling systems.

Chapter 4 addresses the institutional challenges related to modern regional waste management. These include regionalisation and the establishment of inter-municipal bodies. This chapter also tackles the issue of human resource requirements for the new institutional structure.

In Chapter 5, the authors discuss the various mechanisms for financing capital

investments related to municipal waste management. The chapter presents a possible investment strategy and argues that a mixture of financial sources will be needed, including budgetary and EU funds, bilateral donors and the private sector. The authors give a short overview of the benefits and risks of private sector participation (PSP) in waste management and list different PSP modalities.

Chapter 6 discusses possible cost-saving reforms. The financial difficulties of any company, including utilities, can generally be eased in one of two ways: through reducing expenditures and/or by generating more revenues. There is much room for improvement in both these areas. Currently, waste utilities have little incentive to operate efficiently. In order to increase the attractiveness of investment in waste infrastructure it is therefore important to improve the financial and operational performance of the utilities through better strategic planning and better human resources management.

Chapter 7 tackles the other side of the equation and is devoted to enhancing revenues through suitable tariff design. The chapter explores the role of tariffs as well as problems of tariff collection. The authors give an overview of tariff design principles, including adequate cost recovery; the polluter pays principle; and the importance of affordability and willingness to pay.

Chapter 8 focuses on economic instruments and the benefits of their implementation. Economic instruments are used in solid waste management to increase cost-efficiency and as a source of revenue generation. Economic instruments are also used as an incentive to reduce MSW generation.

Chapter 1

Brief overview of EU waste policies

The Thematic Strategy on the Prevention and Recycling of Waste

European Union waste legislation has developed substantially in the last 30 years. The Thematic Strategy on the Prevention and Recycling of Waste (2005)¹ recognised waste as an “environmental, social and economic challenge for Europeans”. The strategy treats waste as an economic opportunity and as a resource for industry. Around 1.5 million jobs are available in recycling alone, and a turnover of 100 billion euros in the EU-25.

European Union policy is based on the waste hierarchy: the treatment options range from the most favourable and environmentally sound — that is, prevention — to the option with the highest environmental impact: landfilling.

Between prevention and landfilling there is a set of treatment options (re-use, recycling and energy recovery) that are widely used in the EU-27. One of the overall goals of EU waste policy is to shift the waste treatment options higher up in the waste hierarchy.

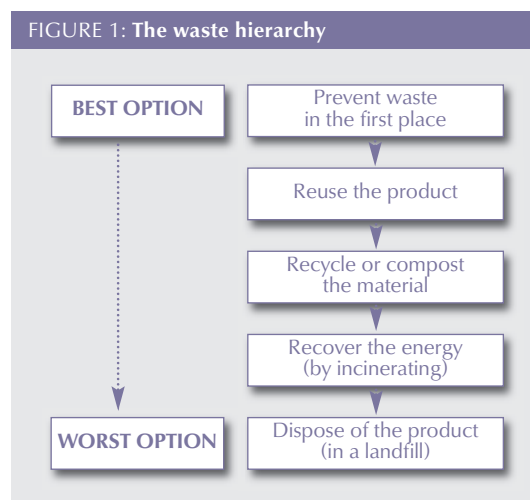
The policy instruments underpinning this approach are the Waste Framework Directive (2008/98/EC), the Hazardous Waste Directive (94/31/EC) and the Waste Shipment Regulation (308/2009). These are complemented by more detailed legislation setting standards in connection with some of the treatment options — the Waste Landfill Directive (99/31/EC) and the Waste Incineration Directive (2000/76/EC), as well as legislation dealing with specific waste streams (waste oils, polychlorinated biphenyls [PCBs]/polychlorinated terphenyls [PCTs] and batteries). Recycling and recovery targets have been set for some of the major waste flows: packaging (the Packaging Directive 94/62/EC), end-of-life vehicles (the ELV Directive 2002/53/EC) and waste electrical and electronic equipment (the WEEE Directive 2002/95/EC).

According to the thematic strategy, “the main objective of current EU waste policy is to prevent waste and promote reuse, recycling and recovery so as to reduce the negative environmental impact.”

The emphasis of current and future EU policy will be in the following directions:

- Full implementation of existing legislation — this has been relevant for the SEE region because of its relatively weak law enforcement practices.
- The simplification and modernisation of existing legislation.
- Further introduction of life-cycle thinking and the minimisation of environmental impact throughout the life cycle.
- Further promotion of waste prevention.
- Better knowledge and information — this is especially relevant to the SEE region where environmental awareness in general, and waste treatment knowledge in particular, are relatively low.

FIGURE 1: The waste hierarchy



BOX 1: Implementation tasks

Implementation tasks that tend to be cost intensive and time-consuming are:

- Developing and approving waste management strategies and implementation plans.
- Developing appropriate institutional arrangements and tools for regulation and enforcement.
- Planning, designing and constructing new infrastructure and facilities.
- Providing permits for new infrastructure and facilities.

- The development of common reference standards for recycling.

The ultimate goal of all these changes is to “move waste away from landfills”, and to have “more compost and energy recovery from waste” and “more and better recycling”. From November 2008, the new Waste Framework Directive responds to some of these ambitions. One of the long-term goals of EU waste legislation is for Europe to become a recycling society.

The Waste Framework Directive

The Waste Framework Directive (2008/98/EC), adopted in November 2008, is the main piece of EU waste legislation: it sets definitions and introduces new concepts. The “new” WFD streamlines some definitions in the “old” WFD (2006/12/EC). The directive emphasises the importance of prevention, recycling and reuse. In the context of SEE, this means that the construction of modern installations should not compromise national efforts to treat waste using alternative methods.

The WFD points out that “Member states shall take appropriate measures to establish an integrated and adequate network of disposal installations, taking account of the best available technology not involving excessive costs.” This text is the legal basis for designing national strategies calling for new, modern waste disposal facilities with a proper geographical coverage.

The WFD embeds the polluter pays principle in waste management: this means that the costs of disposal must be borne by the holder or the producer of the product. The principle is explained in detail in Chapter 7 on tariff reform. One of the main paradigm changes in SEE will come about through the implementation of the polluter pays principle. Until recently, MSW management was regarded as a free or extremely cheap service with a relatively low quality. Naturally, the implementation of the polluter pays principle will entail a change in this perception. Another important principle in the WFD is the full cost recovery principle: “It is appropriate that costs be allocated in such a way as to reflect the real costs to the environment of the generation and management of waste.”

One of the differences between the old and the new WFD is the clarification

as to when the incineration of MSW is energy efficient and may be considered a recovery operation. The new WFD also makes a precise differentiation between waste and by-products and clarifies when waste ceases to be waste by laying down end-of-waste criteria.

The WFD introduces the concept of extended producer responsibility. This concerns any natural or legal person who professionally develops, manufactures, processes, treats, sells or imports products. It is associated with a potential set of measures that may include: the acceptance of returned products; the obligation to provide publicly available information as to the extent to which the product is reusable and recyclable etc.

The WFD includes provisions for the separate collection of hazardous waste, waste oils and bio-waste. **In practice, SEE countries should secure investments for the separate collection and treatment of all relevant waste streams.**

Waste management plans as a major requirement of the Waste Framework Directive

It is important to highlight the need for waste management plans to be developed at national/regional and local levels. Guidance notes are available from the European Commission at <http://ec.europa.eu/environment/waste/plans/index.htm>. This is directly relevant with respect to investments, since for many EU-funded projects, the existence of a management plan is a precondition for receiving financing.

Waste management plans are vital in achieving sustainable waste management. Their main purpose is to provide an outline of waste streams and treatment options. Although this manual does not contain a separate chapter on waste management planning, the authors recognise its importance and reiterate that all waste projects should be an integral part of a properly drafted waste management plan.

The planning sequence is as follows: national strategy → national waste management plan → regional waste management plans → municipal waste management plans.

BOX 2: Waste management planning

Waste management plans aim to provide the following:

- A framework for compliance with waste policy and target achievements.
- An outline of waste characteristics and sufficient capacity for managing waste.
- Control of technological measures.
- An outline of economic and investment requirements. Waste management plans allow for a statement of the financial requirements for the operation of collection schemes, waste treatment etc. Based on this, the needs for future investments in waste treatment plants can be determined.

BOX 3: Planning hierarchy in Croatia

- Waste Management Strategy of the Republic of Croatia (Official Gazette, No. 130/05) – 2005.
- Waste Management Plan of the Republic of Croatia for the period 2007 to 2015 (Official Gazette, No. 85/07) – June 2007.
- According to the Waste Management Plan and obligations arising from the Waste Law (Official Gazette, No. 178/04, 111/06, 60/08), 21 counties prepared draft regional waste management plans in 2008.

An overview of the current waste management system is the starting point.

The overview encompasses the following:

1. Setting the political objectives for:

- waste prevention/minimisation;
- recycling/energy recovery;
- safe disposal facilities.

2. A description of current waste management from the point of view of the administrative and organisational frameworks, at the same time addressing the efficiency of the operator(s) serving a given geographical area. The description should include:

- Indicators for the environmental, health and safety performance of the current system.
- The capacity and physical performance (collection equipment, trucks, access to waste management facilities) of the waste system as a whole and in terms of proximity and self-sufficiency.
- Indicators for efficiency and the organisational framework of the system expressed as number of employees per tonne of collected waste; fuel consumption per tonne of collected waste; average age of the vehicles; compaction ratio; fee collection efficiency; cost recovery rate etc.

3. The identification and analysis of the expected parameters of significance for waste generation, and the identification of options for waste management:

- Amounts of waste and the composition of waste adjusted in relation to:
 - population growth;
 - changes in economic situation (growth/recession);
 - changes in the demand for and nature of consumer goods;
 - changes in manufacturing methods;
 - new waste treatment methods;
 - effects of policy changes.

4. The determination of objectives for:

- waste prevention, recycling, recovery and the safe disposal of waste;
- waste streams, for example priority waste streams;
- sources of waste, for example industry and households.

5. The future waste management system:

- Action plan:
 - collection (kerbside, bring schemes, recycling sites);
 - waste management facilities (recycling, incineration with energy recovery, landfilling);
 - distribution of responsibilities between local authorities and industry (municipal waste/industrial waste, producer responsibility etc.);
 - economic consequences and financing;
 - total cost of the management system;
 - use of charges, fees and taxes, producer responsibility;
 - measures to implement the waste management plan.

6. Long-term development

- future investments in new waste management facilities;
- additional research and studies to be performed.

The Waste Landfill Directive

The Waste Landfill Directive (WLD) (99/61/EC) sets standards for the safe landfilling of MSW and contains the relevant technical requirements with which all new installations in SEE should comply. The WLD reiterates the need for prevention, recycling and recovery and advocates landfilling only as a last resort. It also sets targets for diverting biodegradable waste from landfills. According to the WLD, all costs for setting up, operation and closure should be reflected in the charges for landfilling. This is of the utmost importance for the establishment of integrated waste management systems and will be further discussed in Chapter 7.

The WLD contains other provisions that are less relevant to investments. These include requirements for adopting national strategies for the reduction of biodegradable municipal waste (BMW) going to landfills; definitions of classes of landfills and wastes not accepted in landfills; and prerequisites for detailed permits for landfill operators and the upgrading of existing landfills. In the context of a shortage of funds for the construction of all the new facilities that are needed, the latter provision will be particularly relevant for SEE countries.

TABLE 1: Package of measures related to the implementation of the EU waste directives

	ESTONIA	FINLAND	FLANDERS (BELGIUM)	GERMANY	HUNGARY	ITALY
User charge for waste management	●	●	●	●	●	●
Environmental product charges					●	
Landfill tax	●	●	●			●
Incineration tax			●			
Landfill ban	●	●	●	●	●	●
Separate collection of biowaste	●	●	●	●	●	●
Producer responsibility/voluntary agreement for waste paper		●	●	●		
Producer responsibility for packaging waste	●	●	●	●	●	●

Source: Research conducted by the European Topic Centre for Resource and Waste Management (ETC/RWM)

The Packaging and Packaging Waste Directive

It is essential to tackle packaging waste efficiently as it represents a significant proportion of MSW. The EC therefore considered it necessary to address this waste stream in a separate piece of legislation.

The objective of the Packaging and Packaging Waste Directive (94/62/EC) is to prevent packaging waste and to encourage the reuse of packaging as well as return, collection and recovery systems. The directive also sets benchmarks for recovery and recycling.

The Hazardous Waste Directive

The Hazardous Waste Directive (91/689/EEC) is one of the oldest EU legislative acts on waste. It differentiates between hazardous and non-hazardous waste and introduces stricter waste management requirements. Hazardous waste must be recorded and identified, and there are specific permit requirements for waste disposal facilities. All facilities handling hazardous waste (producers, treatment companies) are subject to periodic inspections covering, in particular, the origin and destination of the waste. Transporters and all facilities handling hazardous waste must keep a record of their activities and make this information available to the competent authorities. The provisions of this directive and the Waste Landfill Directive stipulate the construction of special hazardous waste landfills that differ from those receiving MSW.

BOX 4: Possible measures for the implementation of the Packaging and Packaging Waste Directive. Examples from Estonia

- Guarantee collection and recovery
- Take-back system
- Implementation of deposit system
- Excise duty on packaging
- Exemption from excise duty in the event of a high recovery rate

BOX 5: Financing waste management systems in the former Yugoslav Republic of Macedonia and Croatia

In the former Yugoslav Republic of Macedonia, the one-off capital costs of complying with the Waste Landfill Directive are estimated at EUR 360 million, while annual operating costs would be as much as EUR 44 million.

Capital/one-off costs refer to capital expenditure on equipment and infrastructure and non-recurrent costs such as technical assistance projects, initial training, awareness campaigns etc. Operating/recurrent costs refer to salaries, rent, maintenance, light and heating, fuel, annual fees etc.

On a per capita basis, these costs amount to about EUR 180 as a one-off amount; and EUR 22 per year for every inhabitant of the country.

In Croatia, it has been estimated that starting up the system of waste management centres, at the operational level, would cost about EUR 350 million; and that another EUR 400 million will be needed for the remediation and closure of 299 landfills. The cost of the remediation of illegal dumpsites is estimated at EUR 9 million.

EU accession as a main driver for improvements in waste management

In all new member states, and in some of the EU-15, accession was the main driver for introducing modern waste management. For example, Estonia and Hungary had problems with both illegal and non-sanitary dumpsites but managed to significantly reduce their numbers within a short period of time (in Estonia they were reduced from 148 in 2000 to 37 in 2004). The landfilling of untreated biowaste was banned in Estonia in 2004, and in Hungary in 2003. However, it should also be pointed out that compliance with the EU waste acquis represented a major financial challenge in the new member states as they had to finance the resolving of all historical problems as well as investments in new infrastructure over a period of 10 years. It is to be expected that, just as in the new member states, EU accession will financially strain candidate and potential candidate countries, as they will simultaneously have to address the old waste management legacy and invest in modern waste management systems.

Chapter 2
**The waste management situation
in South Eastern Europe**

Albania

Institutional and legislative framework

According to the EC progress report, little progress has been achieved in the waste sector in Albania. The responsibility for environmental policy at the national level belongs to the Ministry of Environment, Forestry and Water Administration (MoEFWA) and the Ministry of Public Works, Transport and Telecommunications (MoPWTT). Both ministries are in charge of developing strategies, drafting laws and setting basic tariffs in the waste sector. However, the above-mentioned planning activities are still in the initial phase. Some progress has been achieved in updating waste management legislation, which defines the basic responsibilities at national and local level, but the relevant strategies, policies and plans are not yet in place. However, there are several regional plans related to internationally funded regional landfill projects, as described below.

According to the existing legislation, the municipalities and regions are responsible for municipal waste management (collection, transportation, treatment and final disposal). They are also responsible for preparing local and regional plans on waste management, suggesting the appropriate location for landfills in their territory and defining fees. Municipalities can subcontract companies to perform certain components of their waste management systems.

The EU CARDS 2006 project “Implementation of the national plan for the approximation of environmental legislation” is expected to improve legislation and enable the effective control of solid waste management. A main component of the project is to develop the institutional capacity of the MoEFWA.

Albanian policy and institutional development objectives include: the development of a strategy for managing abandoned industrial sites; the development of a plan for the safe closure of urban and industrial waste dumps; the development of a strategy and action plan for the sustainable management of municipal waste; the development of a strategy and action plan for the management of hazardous waste, industrial waste and medical waste; and the establishment of an urban administration that will also be involved in municipal waste management.

Financial framework and investments

There is a funding gap with respect to environmental projects due to a lack of domestic funds, the absence of feasibility studies and environmental impact assessments (EIAs), and the lack of competences in line ministries to develop project files.

The MoPWTT manages a capital investment programme that contributes to the development of communal environmental infrastructure, including waste sector infrastructure. However, in practice environmental infrastructure investment projects have been almost fully financed with assistance from foreign sources of financing, from bilateral donors and IFIs. Among the major waste projects being implemented are: “Solid waste management in the Korca Region”, financed by the Swedish International Development Cooperation Agency (SIDA) (EUR 1.5 million, 2005-2008) and the Sharra landfill project financed by the Italian Govern-

ment (EUR 6 million, 2007-2009). The MoPWTT capital investment programme envisages for the year 2011 the construction of four regional landfills (Elbasan, Fier, Gjirokaster and Berat), as well as the closure of five existing dumpsites in five regions (Elbasan, Durres, Berat, Lezhe and Pogradec). Additional investments in waste management are envisaged to be secured from the state budget. State budget allocations for the waste sector for 2009 are EUR 2.3 million; for 2010 EUR 5.2 million; and for 2011 a predicted EUR 13 million.

Level of services

The availability of waste monitoring data is low and there is a lack of appropriate waste statistics. Waste management services, although incomplete, exist in urban areas (covering 80 to 90 percent), while rural areas are covered at between 10 and 20 percent by waste management schemes. In urban areas the municipalities determine the waste management fees, which currently vary between EUR 8 and 18 per household per year across the different municipalities. Such fees can only cover collection and transportation, but not the proper treatment and final disposal of waste. In most cities and towns, waste collection and transportation services are subcontracted by the municipality to private companies.

Across the country there are 65 legal — although unmanaged and uncontrolled — landfills for urban settlements, as well as an unknown number of illegal waste dumps in rural areas. There is no separation of household waste from industrial, construction or hazardous waste. Some medical waste is incinerated in obsolete incinerators causing air pollution hazardous to human health. None of the existing landfills meet international standards for construction and health norms (location, protective lining, drainage system, leachate treatment, gas collection etc.). No waste stream is sorted formally into recyclable components, although there is a small-scale informal market among individual collectors and small companies. Landfills and illegal waste dumps often catch fire, releasing dioxins and furans.

Bosnia and Herzegovina

Institutional and legislative framework

Waste management is handled at both state and entity level. Solid waste management laws applicable to each entity within Bosnia and Herzegovina are produced and approved at entity level. Efforts are made to harmonise legislation in the entities. At federal level, waste issues are the responsibility of the Ministry of Foreign Trade and Economic Relations (MOFTER). Municipalities are responsible for organising waste management services, usually through the Department of Communal Affairs. Bosnia and Herzegovina still lacks adequate legislation for solving the issue of waste management at state and entity level. Municipalities have attempted to compensate for this deficiency by enforcing local regulations on waste management.

The 2008 Instrument for Pre-accession Assistance (IPA) project “Strengthening of Bosnia and Herzegovina’s Environmental Institutions, Preparation for Pre-

accession Funds and Support to Environmental Infrastructure Development” relates to environmental infrastructure investments identified as a priority by the authorities in Bosnia and Herzegovina. Financial feasibility studies for future regional landfills, as well as financial, environmental and social assessments of the landfill sites will be performed within this project. The studies will help entities and local authorities to identify possible locations for regional sanitary landfills, to be funded from the World Bank loan for solid waste management infrastructure.

The Solid Waste Management Strategy (SWMS) was prepared with EC support through the CARDS project, and was adopted in 2000. It identified 16 regional landfills.

Financial framework and investment projects

Investments in the waste sector are financed mainly by the EU or IFIs. The EU has been one of the most active donors: it financed the purchase of recycling equipment for a Sarajevo utility and the closure of dumpsites in Knezevo and Trebinje.

The implementation of the SWMS began with the first phase of the World Bank (International Bank for Reconstruction and Development [IBRD] + International Development Association [IDA]) solid waste management project (SWMP), which included the construction of six regional landfills (Sarajevo, Zenica, Tuzla, Bihac, Banja Luka and Bijeljina regions) through an IDA loan. During the implementation of this project, 145 illegal dumpsites (10 percent of the total) were cleaned up and closed. The second phase of the project, with funding of USD 38.5 million, is currently being implemented, with additional donor participation.

The World Bank provided technical assistance in three new regions for areas not participating in the World Bank-financed project, and signed strong partnership arrangements on technical assistance in coordination with the Japan International Cooperation Agency (JICA), SIDA and the United States Agency for International Development (USAID). The SWMP-2 will be financed through a specific investment loan and will include the construction of six to eight new regional landfills: in the Federation of Bosnia and Herzegovina — Mostar, Gorazde, Zenica and Livno regions; and in Republika Srpska — Prijedor, Zvornik, Derventa, Doboj-Tesanj and Trebinje regions. The project will be implemented between 2009 and 2013 under the overall responsibility of the Ministry for Environment and Tourism (FMET) in the Federation, and the Ministry of Urbanism, Civil Engineering and Environment (MUCE) in Republika Srpska. A project management unit has been established in the Federation of Bosnia and Herzegovina for the implementation of the entire project, including procurement and financial management aspects. The project will be consistent with the entity solid waste management strategies and is to include a minimum of three municipalities with an established inter-municipal board. Eligibility for investment funding is dependent on the establishment of a regional solid waste management company and the selection of a site for a regional sanitary landfill after consultations with local communities. Local authorities are responsible for setting the tariff structure, and municipal councils need to approve fee increases. The level of invoice collection is on average between 60 and 70 percent.

Level of services

Approximately 36 percent of the country is covered by municipal solid waste management services.

It is estimated that Republika Srpska has 25 municipal landfills and a large number of illegal dumpsites; and there are 50 municipal dumpsites and a large number of illegal disposal sites in the Federation of Bosnia and Herzegovina. Some progress has been made in reducing pollution by establishing regional landfills, for example in Sarajevo and Banja Luka, and by rehabilitating inadequate disposal sites.

Croatia

Institutional and legislative framework

In Croatia, the Ministry for Environmental Protection, Physical Planning and Construction (MoEPPC) is responsible for the waste sector at the national level. Croatia adopted the Waste Management Law and its National Waste Management Strategy (NWMS) in 2005, and in 2007 the National Waste Management Plan (NWMP) for the period 2007 to 2015. The 21 Croatian counties are obliged to prepare draft waste management regional plans. Counties are allowed to draft joint waste management plans and form joint regional waste management companies to operate the regional waste management centres (RWMCs). The final number of RWMCs will therefore be 21 or fewer. According to the NWMP, all existing local landfill sites should be remediated or closed, or transformed into transfer stations for future regional management centres by the end of 2011, with a transition period to 2015 (EU Waste Landfill Directive).

Financial framework and investment projects

The total investments needed in the waste sector are estimated at EUR 3.25 billion. Depending on the final number of RWMCs, the assessed investments will range from EUR 350 to 400 million in order to bring the landfills to operational level. The financing of RWMC construction is envisaged through public sources (state budget, budgets of local and regional self-government units, EU funds, the Environmental Protection and Energy Efficiency Fund [EPEEF], bank loans) as well as private sources (private investments in WMCs (PPP, concessions, primary separation and collection of waste, recycling and collecting plants/facilities).

In phase one of the RWMC financing structure, public costs (landfill site, infrastructure and transfer station) will be financed up to 80 percent from EU funds and EPEEF; and 20 percent by local authorities. Bank loans will be used for the establishment of a collection system and for the construction of the municipal waste disposal system at the level of the local (regional) self-government. In phase two, the costs of mechanical biological treatment (MBT) plants will be financed by the private sector (PPP) and, if possible, the public sector. Investments are required for MBT facilities, landfills and infrastructure, the construction of transfer stations along with system set-up costs. As of February 2009, the Croatian EPEEF

is assisting nine RWMC projects in preparing project documentation. Three out of these nine projects have applied for IPA funds — Mariscina (Primorsko-goranska county), Kastijun (Istria county) and Lecevicica (Split-Dalmatia county), while a fourth — Bikarac (Sibenik-Knin County) — has already received ISPA funding. The phase one costs for these RWMCs vary from around EUR 20 to 60 million, depending on the size of the region.

In addition to the MoEPPC, the two other important bodies in financing environmental infrastructure are the Croatian Environment Agency and the Environmental Protection and Energy Efficiency Fund, which is assisting the waste sector in the preparation of technical documentation and IPA applications. At the local level, the current charges for the collection, transportation and disposal of municipal waste from households are based on living or commercial surface calculation (kn/sqm). The tariffs differ for households and commercial spaces. The higher tariffs for commercial spaces are intended to subsidise the low tariffs for households. However, revenues are insufficient and local authorities are often co-financing waste management operational costs from their budgets. The Waste Law prescribes the introduction of a charge calculation system based on quantities of produced waste (number of households, tonnes) in order to compute realistic charges for households and producers of municipal waste. The future RWMCs will be obliged to introduce such tariff calculation systems.

Level of services

The closing of old dumpsites is a precondition for establishing new waste management centres. Some 299 landfill sites in Croatia are in the process of remediation/closure, and around 20 percent of this task has been completed.

Kosovo (as defined under UNSCR 1244)*

Institutional and legislative framework

The Strategy for Environmental Protection was adopted in 2006; the National Environmental Action Plan (NEAP) was adopted in 2007; and the strategy for waste management is currently in the process of development. The current Waste Law was enacted in 2006 along with a number of pieces of secondary legislation covering used waste oil, construction and demolition waste, used batteries and accumulators, end-of-life vehicles, packaging waste, the competencies of owners and operators of waste treatment facilities, the administration of waste landfills, hazardous waste, electrical and electronic equipment waste, as well as medical products and waste. Several other pieces of secondary legislation are in the process of being drafted: on conditions for the selection of locations for and the construction of waste landfills; on used and old tyres; on the export, import and transportation of waste; on licences/permits for waste administration; on the movement of waste from public spaces; on mandatory penalties; and on waste containing asbestos.

The Water and Waste Regulatory Office (WWRO) is the independent eco-

conomic regulator for water and solid waste services in Kosovo*. Its responsibilities include: licensing public enterprises; setting and approving tariffs for regulated services; monitoring and enforcing compliance with service standards for licensed service providers; supervising and enforcing the disconnection regime of unlawful connections; and establishing and supporting customers in each service area (a total of seven regions).

Financial framework and investment projects

Sources for financing waste management projects include the state budget, donors and private companies. Projects are currently being implemented on the rehabilitation of old landfills in Prizren, Gjakova, Kacanik, Ferizaj, Gjilan and Lipjan. Another two projects for non-municipal waste (medical and hazardous waste) are under preparation.

The main challenges to financing waste management projects include defining clear responsibilities at central and local level; settling issues of ownership of landfills and wastewater treatment plants; increasing the limited budget for environmental management; establishing an eco-fund; providing mechanisms for obtaining international funds and loans; strengthening the existing financing system and improving payment and fee collection. Other challenges include the rehabilitation of industrial landfills that are major sources of cross-border pollution, as well as the expansion of the infrastructure for collecting, selecting, treating and disposing of waste.

Level of services

In the whole of Kosovo*, only 35 percent of municipal waste is collected (90 percent in urban areas, and less than 10 percent in rural areas). Hazardous waste, chemicals, industrial waste and medical waste streams are not properly managed. The municipal waste fee is EUR 3.5 per household. The invoice collection rate is only 30 to 40 percent. Some 70 percent of all waste is illegally dumped (on the streets, around rivers, lakes and mountains, and in rural areas). Waste comprises household, commercial, hospital, construction and demolition waste, ash and sludge, along with packaging, plastic, electric and electronic waste, none of which is separated. Kosovo* has inherited 30 old legal but non-sanitary municipal landfills. Of those, 26 have been rehabilitated and closed with the help of the European Agency for Reconstruction (EAR). Five new landfills have been built (also funded by the EAR) and are now used regularly for waste disposal.

The former Yugoslav Republic of Macedonia

Institutional and legislative framework

A number of legal documents have recently been adopted and/or amended in the former Yugoslav Republic of Macedonia with the aim of harmonising them with the EU acquis. After passing the horizontal and vertical laws, the most inten-

sive drafting of bylaws is taking place in relation to the waste sector.

A number of strategies and plans provide the basis for the improved implementation of waste management. The National Environmental Investment Strategy (NEIS) includes a call for proposals towards implementing eight regional integrated waste management systems (including the closure and reclamation of non-compliant landfills); annual calls for proposals for pilot projects (recycling, recovery) and industrial hotspots (e.g. MHK “Zletovo”) landfill remediation. The National Strategy for Environmental Approximation (NSEA) provides financial arrangements to secure full waste acquis compliance. According to the NSEA, the waste sector will require total capital investments of around EUR 360 million.

The National Waste Management Strategy (NWMS) was adopted in April 2008 for a 12-year period and represents the basis for the preparation and implementation of an integrated and cost-effective waste management system. The NWMS recommends the implementation of a regional approach to communal solid waste management through regional municipal associations or inter-municipal public enterprises.

The National Waste Management Plan (NWMP) was developed before the NWMS and will be revised in 2009. Feasibility studies have been developed for the South West (KfW support), Central East and North East regions (CARDS 2001 programme) as well as pre-feasibility studies for the Polog and Strumica regions (with a grant from the Ministry of Foreign Affairs of Norway). The latter two studies are expected to be approved in 2009. Depending on the site conditions and current capacities, the regional projects are estimated at between EUR 10 and 12 million. This figure includes all incremental mobile equipment, containers to cover the region, necessary facilities for waste recycling/recovery and the construction of the sanitary landfill.

Financial framework and investment projects

Investments in each of the regions will include the construction of a regional sanitary landfill in accordance with the Waste Landfill Directive; the organisation of a selection process for communal waste components where separate processing is possible; the collection and transportation/transfer of residues from mixed waste; and the remediation of illegal landfills.

The former Yugoslav Republic of Macedonia has access to pre-accession assistance through the IPA and will be eligible for assistance under all five components of the programme. Funds for investments in environmental infrastructure require substantial co-financing (of around 30 percent of the total project costs). In order to address the co-financing requirements, the following sources have been identified: national budget funds, loans to the government, local budgetary funds, loans to municipalities, loans to utility companies, the private sector and carbon financing.

Foreign sources of financing for environmental investments have already played an important role in the former Yugoslav Republic of Macedonia in recent years in the form of grants and loans for environmental purposes (including the waste sector) from donors and IFIs (UK, CARDS, EU, UNDP, USA, Italy etc.). How-

ever, a further challenge is to create conditions for IPA financing that are streamlined to regional solid waste management. Grant money from the international donor community is vital due to the high costs of construction.

Level of services

At present, waste collection services are primarily carried out by municipal public utility companies (PUCs). Only a small proportion of waste collectors are private companies, typically those dealing with waste in rural areas. Regular waste collection services are mainly limited to urban areas. In total, around 70 percent of the total Macedonian population benefit from regular waste collection services (in rural settlements the proportion is around 10 percent). Waste disposal practices do not comply with any technical and/or environmental standards. The majority of PUCs suffer from a lack of funding as a result of the low fee collection rate and/or low waste tariffs.

Montenegro

Institutional and legislative framework

The newly established Ministry of Spatial Planning and Environmental Protection (MSPEP, formerly the Ministry of Tourism and Environment) is the main institution responsible for waste management activities in Montenegro. Strategic waste management documents include the National Waste Management Policy, the Strategic Waste Management Master Plan for the regional level (2005 to 2014), and the National Waste Management Plan, 2008 to 2012.

Waste management activities are also regulated at the local level, where local self-governments are in charge of developing and applying the waste management policy. The collection, transportation and disposal of waste are organised within municipal public utility companies. Within the MSPEP, a project implementation unit (PIU) was established in 2008. Its main goal is to provide support to local self-governments in the preparation of project documentation, and to assist in securing financing from international organisations and financial institutions. In the same year, responsibility for issuing permits, supervising inspections, monitoring and reporting were undertaken by the newly established Environmental Protection Agency.

The National Waste Management Plan (NWMP) defines waste management objectives and establishes conditions for rational and sustainable waste management for a period of five years. Based on the NWMP, local self-government units will be obliged to develop local waste management plans. The Strategic Waste Management Master Plan (SWMMP) for the regions paves the way for developing investment projects related to the construction of regional sanitary landfills. It envisages the construction of seven regional sanitary landfills in Montenegro.

Financial framework, investments and investment projects

Funds for the complete implementation of the SWMMP are estimated at between EUR 110 and 120 million. Financing resources include the national budget and municipality budget, loans from the World Bank and the European Investment Bank (EIB), along with bilateral donor grants.

With the support of USAID, it was envisaged that activities towards the preparation of the Feasibility Study for the Establishment of the Eco Revolving Fund in Montenegro would be completed by the end of 2008. The Eco-Fund is intended to support the realisation of projects in the area of environmental protection and municipal service activities.

Level of services

According to the SWMMP, the territory of Montenegro is divided into eight waste management regions: Bar, Berane, Kotor, Herceg Novi, Mojkovac, Niksic, Pljevlja and Podgorica. Investment priorities include the construction of regional sanitary landfills, the remediation of existing dumps, and one recycling centre pilot project. As of 2008, there has been only one sanitary landfill functioning, serving the city of Podgorica and the town of Danilovgrad. In 2008/9, the remaining six regional sanitary landfills are due to be constructed, and six inter-municipal enterprises for managing these landfills are to be established. The construction of a regional recycling centre at the landfill in Podgorica is under way, with a capacity of 90,000 tonnes of mixed municipal waste per year.

Serbia

Institutional and legislative framework

The institutions responsible for waste management include the Ministry of Environment and Spatial Planning (MoESP), the Serbian Environmental Protection Agency (SEPA), the Environmental Protection Fund (EPF), and the Recycling Agency.

The Law on Waste Management was adopted in 2009 and provides for the complete harmonisation of national legislation with the EU acquis. It is subject to secondary legislation, twenty pieces of which are also in the drafting or adoption stage. The Law on Waste Management regulates waste planning and management, as well as measures and procedures for the collection, transportation, reuse, recycling, treatment and disposal of all types of waste, including communal, medical and hazardous waste, from the national level down to the local level. It also regulates licensing, monitoring and control, and it provides conditions for the inclusion of the private sector in municipal solid waste management operations. The draft Law on Packaging and Packaging Waste was adopted in 2009.

The National Waste Management Strategy (NWMS) was adopted in 2003. Currently under revision, the strategy proposes a regional waste management concept. According to the NWMS, 29 regional sanitary landfills, 44 transfer stations,

17 recycling centres, seven composting facilities and four incinerators should be in operation. To date, four regional sanitary landfills have been constructed in Kikinda, Nova Varos, Uzice and Prokuplje. The construction of five regional sanitary landfills is in preparation in Leskovac, Pirot, Sremska Mitrovica, Vrsac and Smederevo. These projects have been funded through the European Agency for Reconstruction (EAR), the Municipal Infrastructure Support Program (MISP), the Serbian Environmental Protection Fund (EPF), the National Investment Plan (NIP), and bilateral donor grants. Within the IPA 2008 programming process, the MoESP proposed project development for the hazardous waste management facility. There have been no proposals for municipal waste management projects for IPA 2008.

Financial framework and investment projects

The Environmental Protection Fund (EPF) is a separate legal entity set up under the Law on Environmental Protection. In 2009, the EPF secured a total of EUR 15 million for the waste sector, 90 percent of which is available for project financing. The project “Clean up Serbia” began in May 2009 under the MoESP: it envisages the remediation of several illegal dumpsites to a value of EUR 6.5 million.

Level of services

Currently, between 60 and 70 percent of municipal solid waste (2.2 million tonnes annually) is collected by municipal public utility companies. Solid waste is generally collected only in urban centres. In most municipalities the number of containers is insufficient. There is no organised recycling system at present, and public awareness about waste management is still very low. There is no organised waste collection and treatment in rural areas: part of the waste generated is simply burned in backyards. Landfilling is the primary waste disposal method. Municipal waste, including hazardous waste generated by households, is usually disposed of directly into landfills without any separation or treatment. Of the approximately 180 landfills registered for municipal waste, only one meets the required standards. There are also an unknown number of illegal dumpsites, where waste is often burned in uncontrolled fires.

Chapter 3
**Financial challenges to reaching
compliance with the EC waste directives**

Solid waste management (SWM) is one of the government responsibilities that was devolved to local governments during the transition period in all SEE and CEE countries. However, environmental regulation — at least with respect to establishing national waste management strategies — remains the responsibility of national ministries of the environment. What distinguishes solid waste management from other, more appealing, responsibilities entrusted to municipalities, such as education or healthcare, is that in principle solid waste management is not supported by the central government, either financially or managerially. By contrast, solid waste management is for the most part devolved to local authorities without ensuring the technical and financial resources required to carry out the task properly.

In the 2006 study “Implementation of the Landfill Directive at Regional and Local Level” carried out in the EU-25 by the EU’s Committee of the Regions, some 68 percent of the surveyed municipalities declared that they did not receive any specific financial transfers for the implementation of the Waste Landfill Directive.

There is clearly a significant gap between responsibility entrusted by law, and actual human, technical and financial capacities for compliance. Furthermore, in their efforts towards EU accession, all SEE countries are aligning their waste legislation with the EU acquis, thus there is a requirement that solid waste management be brought into conformity with the latest EU standards and practices. These aspects have directly impelled municipalities to look for financing sources other than the central budget in order to modernise the service.

Current practices

When discussing the need for the modernisation of municipal solid waste management in the SEE region, several critical aspects related to current practices need to be taken into consideration: (1) the extension of the service; (2) the collection and transportation of waste; and (3) the disposal and handling of landfilled waste.

TABLE 2: Coverage of municipal solid waste collection service

	COVERAGE	
	Country average	Rural areas
Albania	n/a	Mainly restricted to urban areas
Bosnia and Herzegovina	36%	Mainly restricted to urban areas
Croatia	93%	n/a
Kosovo (as defined under UNSCR 1244)	45%	Mainly restricted to urban areas
FYR Macedonia	60%	Mainly restricted to urban areas
Montenegro	50%	Mainly restricted to urban areas
Serbia	n/a	Mainly restricted to urban areas

Source: PEIP Survey, February/March 2009

(1) Extension of the service: The extent of waste management service coverage in the SEE region, in terms of covered population, varies considerably between countries and between municipalities within each country. However, as a general rule the service is limited to urban areas (larger towns), leaving the majority of the smaller, rural settlements without an organised service at all. In some countries, the proportion of rural settlements that do not have an organised waste management service is as high as 80 to 90 percent. In these areas, the local population usually collects and transports waste to local dumpsites.

(2) Collection and transportation of waste: A variety of waste collection containers are used. In principle, particularly in smaller municipalities, they are not standardised. The frequency of waste collection varies depending on the size of the town and the size of the waste containers used. However, the frequency of waste collection is at a satisfactory level only in central parts of larger towns. As regards waste transportation vehicles, most of the smaller municipalities use traditional trucks or tractors that haul un-compacted waste, while the larger municipalities use more modern compactor vehicles. By and large, the vehicle fleets in use are quite obsolete, with the majority of trucks being near the end of their operational life, giving rise to extremely high operational and maintenance expenses. Collected waste is usually transported directly to nearby landfills.

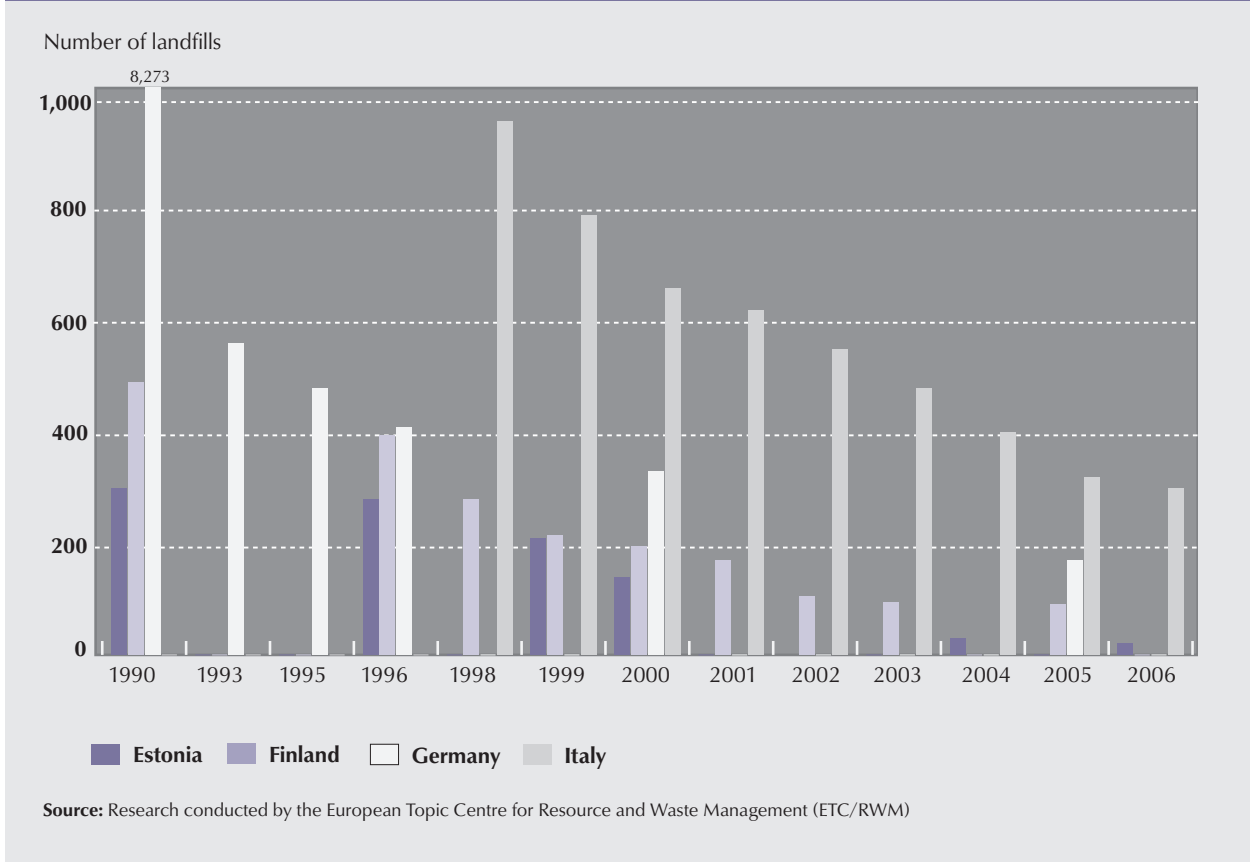
(3) Landfilling: Traditionally, in the SEE region as a whole, each town and village has its own landfill or dumpsite. With the exception of landfills used by capital cities, these sites are usually unregulated, although in many cases they are authorised as “waste landfills” by the local government. In general, these sites do not meet sanitary and environmental standards. The municipalities do not control the quantity or quality of waste deposited, and most of them do not charge disposal (tipping) fees to industry or other users who deposit waste at the sites using their own transportation. The solid waste is commonly dumped over the edge of the site. In some cases, usually when the sites are operated by municipal waste management companies, the operating area is periodically covered by soil or construction waste. However, in most cases significant volumes of deposited solid waste are

TABLE 3: Number of dumpsites and landfills

	NUMBER OF REGISTERED NON-COMPLIANT LANDFILLS
Albania	36
Bosnia and Herzegovina	75
Croatia	252
Kosovo (under UNSCR 1244)	7
FYR Macedonia	54
Montenegro	n/a
Serbia	180

Source: PEIP Survey, February/March 2009

FIGURE 2: Development in the number of landfills for non-hazardous municipal waste in four EU countries



permanently exposed to the atmosphere. No construction measures are taken to prevent the possible seeping of leachate into aquifers; and landfill fires are frequent.

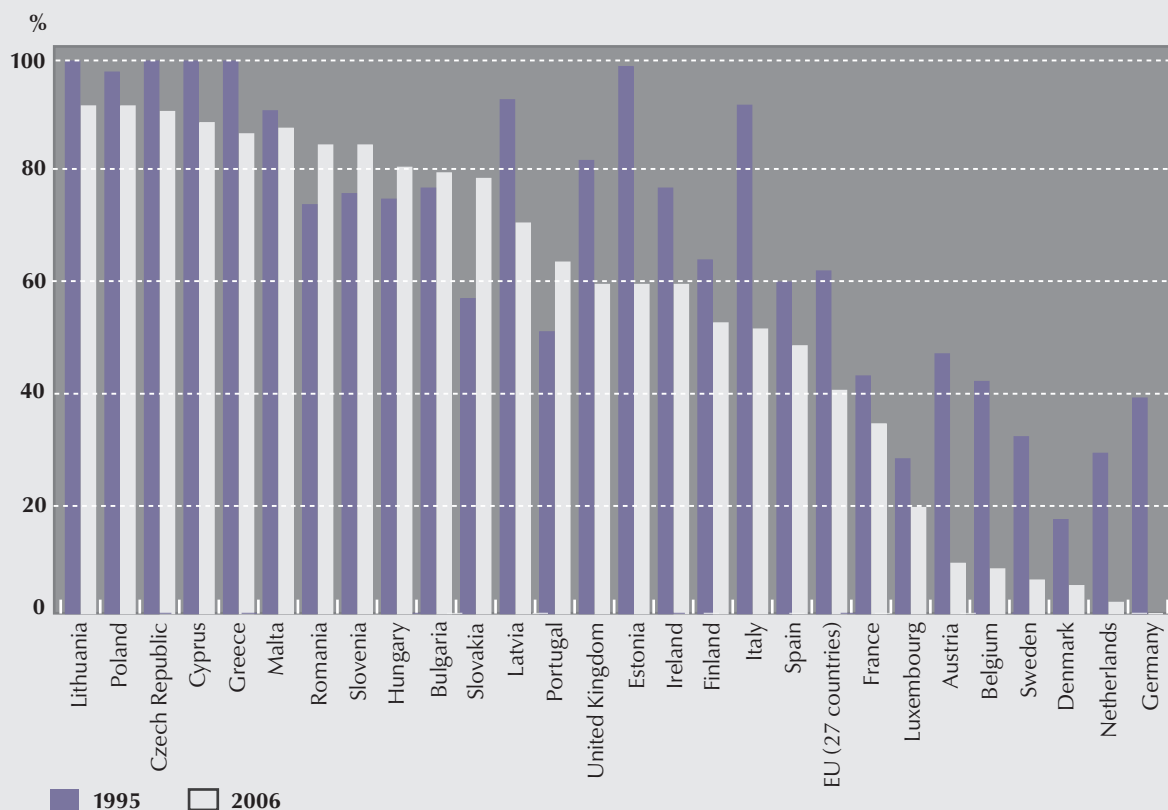
Immediate needs

Critical to the modernisation of MSW management is the development of political consensus at central government level with respect to establishing national waste strategies; and at regional and local level to support and implement these strategies through the enforcement of environmental laws and regulations. The modernisation of MSW also entails upgrading the quality and environmental performance of existing facilities and ensuring that new facilities are constructed according to environmental standards set as part of the national policy and strategy. Bearing in mind the current status of MSW management in the SEE region as a whole, modernisation revolves around two key elements: (1) the regionalisation of the service (addressed in Chapter 4); and (2) the closure or remediation of existing landfills.

BOX 6: Considerations related to the closure of old landfills

- Brings significant environmental and health benefits.
- Goes hand in hand with providing collection and transportation services to 100 percent of the population.
- Requires that local authorities be provided with a guaranteed source of funding to carry it out.
- Demands good legislation with clearly defined responsibilities.
- Requires stakeholder involvement as of utmost importance.

FIGURE 3: Landfill of municipal waste in the EU-27 in 1995 and 2006 as a percentage of municipal waste generated



Source: Calculated on the basis of Eurostat Structural Indicators.

Closure of existing landfills: One specific aspect of reaching compliance with the EU waste directives is the need to close or remediate existing waste landfills

and dumpsites. As mentioned above, current waste disposal practices in the SEE region as a whole are extremely poor: improper waste disposal methods are used, resulting in environmental pollution and significant threats to human health. The establishment of new landfills will be neither effective nor commercially viable unless the existing illegal and non-compliant landfills are closed and all parties deliver waste to the new approved and compliant sites. It should be pointed out that once a regional MSW management system with a central landfill is established, any further “no-cost” waste disposal at old landfills or dumps presents a severe threat to the proper operation of the regional system. The need to close and reclaim existing municipal landfills therefore demands urgent attention.

The clean-up operation is likely to cost a significant amount of money, which may hinder the modernisation and regionalisation of the MSW management service. This issue demands careful examination and calls for detailed planning and the sequencing of implementation in conjunction with modernisation.

Waste prevention, separate collection and recycling

Reaching compliance with the EU waste directives demands that SEE countries pursue the priorities of the waste hierarchy as described in detail in Chapter 1:

- Waste prevention (minimisation)
- Reuse and recycling
- Waste treatment (incineration)
- Waste disposal (landfilling)

The basic philosophy behind the waste hierarchy is to provide a framework for designing strategies and for planning programmes and activities that enable the diversion of waste landfills, as underpinned in the principles of the Waste Framework Directive and in the targets of the Waste Landfill Directive. The main driving force behind such an approach is the improved use of resources and the reduction of the environmental impacts of waste management.

Most of the EU member states have extensive experience and have achieved results in relation to the implementation of waste management strategies based on the waste hierarchy.

Mainly because of a scarcity of funds and a lack of experience, processing facilities, markets and legal pressure, a very limited number of municipalities in the SEE region have so far attempted to organise recycling activities. However, the recovery and recycling of some waste materials exists as an economic activity in all SEE countries. These activities are carried out entirely by private sector firms — that is, small private enterprises. According to the most common scenario, owners of small-scale scrap yards purchase collected waste materials from local individual collectors, or collect waste themselves. After a certain amount of processing, the collected scrap is then sold to end-users or brokers. Scrap metals represent the largest share

of collected recyclables. The main benefits to the communities from these activities are that significant amounts of waste do not enter the waste stream; and the activities are carried out without any direct costs to the citizens.

Although organic (biodegradable) waste represents a significant proportion of the municipal waste stream, this type of waste is not recycled by either the public utilities or private sector enterprises. A number of proven strategies and technologies exist for diverting biodegradable waste away from landfills. These focus mainly on recycling, including composting and aerobic and anaerobic digestion. However, as with other recyclable waste materials, organic waste is still generally deposited in landfills in SEE countries mainly because of a lack of experience (policies), processing capacities and markets.

As mentioned above, SEE countries currently face a number of serious problems related to existing solid waste management practices. At least as an initial step, they urgently need to develop integrated low-cost and low-technology waste management systems suitable for low-income regions. At the same time, the countries should make efforts towards designing waste management strategies, stipulating targets and introducing solutions based on the waste hierarchy. While the financial impact of such strategies and policies is undeniable, it is also certain, based on the experience of other regions, that greater cost-effectiveness can be achieved in the long term.

Finally, when countries are drawing up their national strategies, it is vitally important that the question of markets and other outlets is addressed. While it is possible to put in place the infrastructure for the separate collection and treatment of waste materials, there is no guarantee that reliable and stable markets will be available for the materials produced. Imposing inflated targets for specific recyclables can also result in unpleasant surprises. National planners need to be fully aware of the importance of establishing and maintaining adequate markets when drawing up national strategies and plans for the diversion of wastes away from landfills.

Chapter 4

Institutional and organisational changes

Regionalisation

The setting up of a municipal solid waste management system in compliance with EU directives and standards — including the construction of new, modern facilities as well as the organisation of the service itself — is prohibitively expensive for most SEE municipalities. The environmental standards that modern landfills have to meet, including the provision of plastic linings, drainage networks, monitoring wells, leachate treatment facilities and landfill gas management systems, as well as other indivisible elements such as compactor vehicles, fencing, weighing stations, permanent guards etc., make small, local landfills unfeasible. The costs can only be commercially justified and borne by a large number of users. It is therefore the environmental standards and technology costs that trigger economies of scale and the regionalisation of SWM systems, unless one municipality is large enough to economically justify a solid waste management system with individual state-of-the-art disposal, which is usually the case in capital cities. Apart from technical improvements to the MSW management system, there are certain policy, legislative, economic, financial and institutional prerequisites.

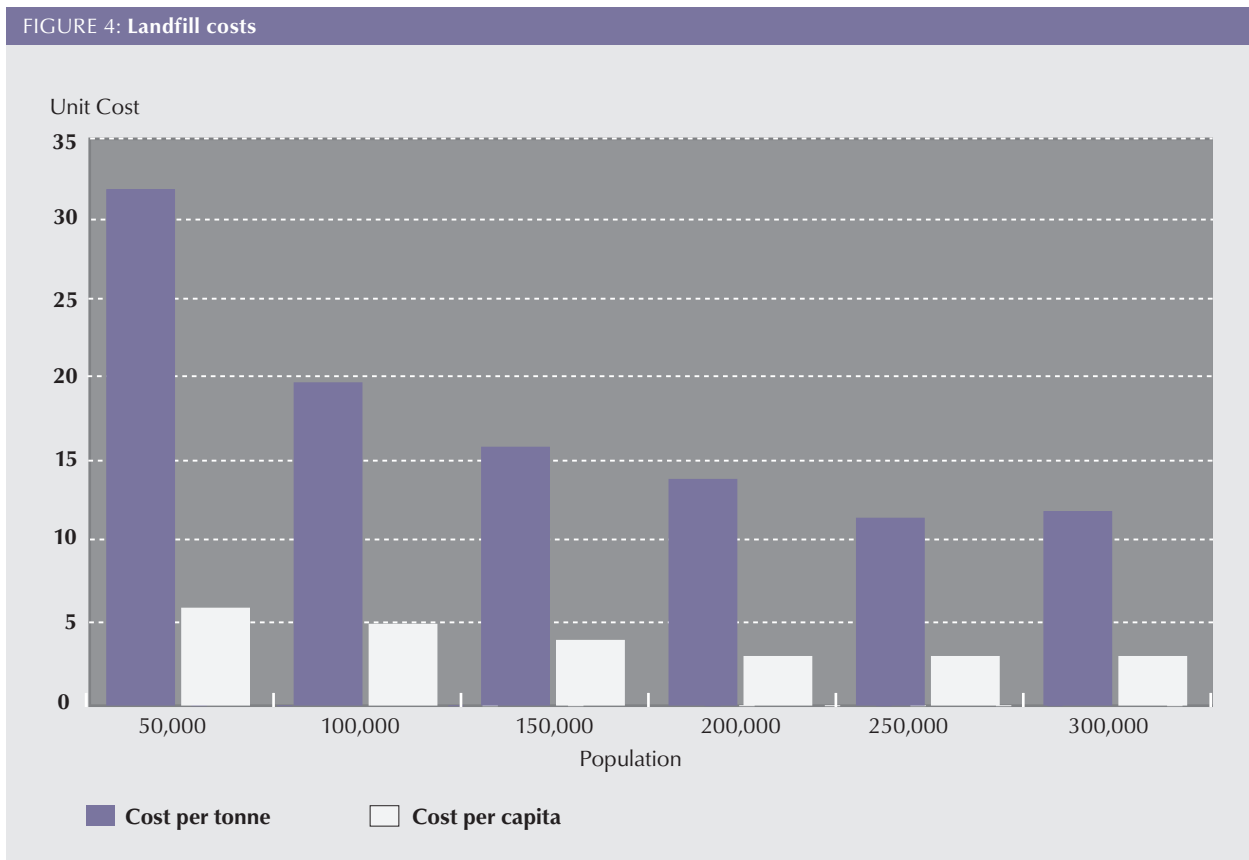
In EU member states, the evolution in waste management from local to regional level has taken decades. As municipalities are mainly responsible for MSW management, most of them started with a municipal approach before practice proved that a regional approach is more viable financially.

Most municipalities in the SEE region are using local final disposal facilities that are essentially uncontrolled dumps, all of which need to be upgraded/replaced. Fully developed waste collection and transportation systems are operational only in urban areas. As a general rule, waste enterprises do not operate in a sustainable manner: only in rare cases do utilities apply the necessary prudence in terms of equipment maintenance, or make appropriate provision for the replacement of equipment. However, all of them currently fulfil, more or less satisfactorily, the task of collecting and transporting waste generated in urban areas. The diligence applied with regard to disposal varies as dramatically as most other aspects of operation. In some cases, waste is disposed of in what can best be described as makeshift landfills, up to 25 km away from the town centre. In other cases, the collected waste may simply be dumped along a riverbank just outside the town. There are rare examples of a regional approach being applied, driven by projects financed by international funders; but even then some illegal activities continue due to a lack of consistent enforcement of newly adopted laws transposing the EU directives.

The planning of integrated MSW management is challenging since there is no uniform definition of a region. However, the size of the waste management regions established should be in a range that enables the installation of technical solutions providing financially viable economies of scale. The regionalisation of waste management operations greatly depends on the geographical and topographical structure of the project area, which influences the operational costs for regional sanitary landfills.

Figure 4 shows the calculation of unit costs for landfills serving a range of municipalities with varying population levels in order to demonstrate the impact of economies of scale. The figure shows the approximate relationship between cost per

FIGURE 4: Landfill costs



tonne and cost per capita for municipalities with populations ranging between 50,000 and 300,000.

Figure 4 illustrates that landfill costs do not start to stabilise until the population reaches around 200,000, which provides a very real justification for regionalisation.

The backbone of a modern waste disposal system is a network of landfills that meet the following criteria:

- Capacity that fully and equally covers the whole country.
- Free capacity to be equally spread over a long time period.
- Possibility to dispose of all generated waste in a controlled way.
- Availability (on a commercial basis) to all waste generators within the country.
- Minimisation of environmental impacts according to BATNEEC principles (best available techniques not entailing excessive costs).

The transposition of EU MSW management standards is only the first step towards initiating changes and improvements in current MSW management prac-

tices. It is also important to establish transition measures and to define a timetable for regulating cases of non-compliance.

Experience in transition suggests that the closure of non-compliant landfills is a precondition for regionalising MSW management. Without the enforced closure of uncontrolled landfills and dumps, municipalities will always prefer to dispose of waste in their own backyard. With their limited financial resources, they will naturally oppose the transportation of waste to landfills further away, for which their often obsolete vehicles are not equipped. The government's role is to set environmental and other standards for landfills, according to which it has the right to mandate the closure of non-compliant landfills.

An improved and integrated MSW management system ultimately involves the modernisation of (1) the collection and transportation of municipal waste; (2) disposal operations according to EU standards; and (3) the reorganisation of services by combining small municipal operating units, or contracting out services to the private sector.

The modernisation of waste transportation equipment is necessitated by the obligation to transport waste over longer distances (from remote settlements to one central landfill). The replacement of obsolete vehicle fleets leads to lower operation and maintenance costs. The construction of one central sanitary landfill for all municipalities that decide to regionalise their MSW management is mainly driven by economies of scale. At the same time, compared to incineration with or without energy production and with the current level of waste fees, landfilling is by far the most cost-effective method of dealing with municipal waste in developing (SEE) countries. This is particularly true where there is no legal pressure for the separate collection of different waste streams, reuse and recycling. This does not, of course, rule out the parallel and gradual introduction of measures aimed at preventing and minimising waste destined for landfills. The intention here is not to posit any priorities per se. The final selection of waste management methods and technologies can only be made following the development of a detailed comparative assessment of the various options.

In integrated MSW management systems, collection is an important cost element and therefore requires the continuous rationalisation of routing, crew sizes and technologies, with the appropriate planning and supervisory staffing.

The following principal indicators need to be addressed during the planning of regional concepts:

- Waste generation and forecasts in relation to the overall landfill capacities required.
- The costs of landfilling for different ranges of capacities.
- The cost implications of the direct transportation or transfer of waste in relation to waste generation and transportation distances.
- The impacts of recycling/composting on the costs of landfilling and the fee levels to be paid by the population.
- Examples of how transportation costs can be shared on a regional level regardless of the geographical distribution of municipalities.

BOX 7: The former Yugoslav Republic of Macedonia: Integrated regional solid waste management

According to the Strategy for Waste Management and the National Waste Management Plan, there are eight regions in the former Yugoslav Republic of Macedonia: Skopje, Polog, the South West, Pelagonija, Middle Vardar, the South East, the Central East and the North East regions. The regions are defined according to topographical conditions, road connectivity and a threshold of at least 150,000 inhabitants. It is planned that each region will have one regional landfill.

Depending on the site conditions (sites have been chosen for almost all regions, and already existing landfills can be used in some of them) and the existing capacities, the size of the regional projects is estimated at between EUR 10 and 12 million of investment. The sum covers all incremental mobile equipment, containers to cover the region, necessary facilities for waste recycling/recovery and the construction of the sanitary landfill.

FIGURE 5: Means of collection, transportation and disposal



The regional landfill should be located reasonably close to the largest population centre. The regional landfill concept is therefore tailored to each situation, depending on the number of population centres, the geographic spread of the population, and the haulage distances and journey times. All these factors influence the capital and operating costs of infrastructure elements and need to be assessed in order to evaluate the various regionalisation options (including the existing “fragmented” local approach) and to select the most feasible one.

The sharing of long-distance transportation costs among participating municipalities can be implemented by integrating them into a uniform gate fee to be paid directly at the landfill or at the transfer points. Another option is to deduct the transportation costs from the gate fee so that the closest municipalities pay a higher price for disposal. Both approaches allow for equal access to the regional facilities: the municipalities should state their preference in the agreements and subsequent legal acts defining the cost elements and financing methods of the operations.

In addition to the technical consequences, the regionalisation of the MSW management service also entails organisational changes that often present a specific challenge.

The regionalisation of MSW management is a familiar concept in SEE, where all countries have identified it as the core feature of their waste management strategies and plans. Annex 1 shows the status of regional waste management in national strategic and policy documents.

Nevertheless, for the region as a whole it can be concluded that the actual im-

plementation of regionalisation, in terms of examples of established regional MSW management systems, is yet to take place.

As illustrated in Figure 5, regional waste management systems comprise several elements: primary waste collection; waste transfer stations; secondary waste transportation and a regional landfill.

The selection of collection and transportation means depends on the topographical and road conditions as well as housing/population density. Transition countries such as those in the SEE region will inevitably need to find the least costly options.

It is notoriously difficult to achieve good cooperation between the various authorities within a region responsible for waste collection and waste treatment and disposal. This is partly due to the fact that each authority has different budget priorities and different planning timeframes, and partly due to the absence of cooperation mechanisms.

Regionalisation as an overall waste management policy, and its implementation in practice, is extremely complex and requires the establishment of appropriate institutional and financial arrangements addressing human resources as well as cost recovery issues, as discussed below.

Institutional arrangements

Regionalisation requires an appropriate institutional form in order to bring those who intend to use the regional facilities under one umbrella. Within a region, it is vital to establish an organisational structure that will facilitate cooperation and the development of regional infrastructure. In particular, mechanisms must be identified that will enable the necessary shared capital expenditure and the shared recovery of capital and operating costs. The main challenge is to bring tariffs, operational costs, available waste collection equipment and the daily routine of enterprises within a sound integrated system functioning under universal conditions over the entire area (see Chapter 7).

Institutional models of regionalisation may take the following forms:

- Municipalities retain their own service company.
- One company is responsible for the entire collection system.
- Municipalities remain responsible for internal collection systems within settlements, while haulage between settlements and the landfill is carried out by a different service company (linked to the central landfill).
- A combination of the above.

1. Municipalities retain their own service company

Municipalities are responsible for waste management services, thus each municipality has a service organisation. After the commissioning of the regional landfill, municipal service providers may remain in place. As local dumps are closed after the central landfill is commissioned, municipalities (except the host municipi-

pality) will have to transport their waste over much longer distances to the landfill. This is the “least-change” model of regionalisation: the change is that municipalities transport waste to a regional EU-compliant landfill, incurring significant additional costs for the local service providers. A plausible investment scenario under this alternative is the wholesale replacement of the local vehicle fleets with larger-capacity compactor vehicles, which will transport waste directly to the central landfill. At the same time, in the longer term municipalities can be expected to utilise economies of scale in organising the collection by merging services with neighbouring municipalities, or jointly contracting private companies to carry out the service. This process implies radical changes in the performance of local utilities towards enabling the further merger, or closing down, of weak service providers.

2. One company is responsible for the entire collection system

This model is frequently propounded as the most efficient, in terms of economies of scale. Certainly overheads will be much lower than for a dozen or more independent municipal service companies; repair and maintenance facilities can be merged etc. Such a system could emerge from a merger of the municipal service companies, but this is rare in reality. More frequently, sub-regional service providers operate in conjunction with a partnership with a private investor. For example, a group of municipalities forms a joint venture and subsequently this company in turn forms a joint venture with a strategic investor (the latter normally being the majority shareholder). Alternatively, such regional companies emerge gradually when a service company in a larger town, with a large landfill, enters into service contracts or joint ventures with adjoining municipalities.

3. Municipalities remain responsible for collection, while haulage to the landfill is carried out by a service company (linked to the central landfill)

In this model, municipalities remain responsible for their internal collection system (presumably with their existing service organisations). Waste is brought to transshipment yards, from where long-distance haulage is carried out by a separate transport fleet associated with the central landfill. The incremental vehicle requirement in this model essentially consists of the vehicles that transport waste from the transshipment yards to the landfill. In this model, there is significant investment in the transshipment yards (and in “collection points” in rural areas). Since the regional operation is superimposed over the local service suffering protracted problems, the implementation of regional projects suggests a variety of risks in terms of financial sustainability (fee collection efficiency and the ability of municipal service organisations to pay for increased transfer/transportation and disposal costs) and monitoring/enforcement measures in relation to the illegal dumping of waste within the municipalities.

4. Hybrid organisational forms

In reality, arrangements are more complex and variegated than the patterns dis-

cussed above. A project area of about 50 independent municipalities, with the intention to construct a central EU-compliant landfill, would bring about significant changes in the inherited institutional set-up:

- Waste collection and transportation, for example, may be carried out by a private operator in several municipalities, using a non-compliant landfill.
- Some public utilities may provide services to neighbouring rural municipalities.
- In certain rural municipalities a small private operator may be engaged to carry out the service.

Given such a diversity of operators, in order to create conditions for initiating an integrated municipal waste management system at regional level, it may be necessary to form either a regional waste management company, jointly funded by the cooperating municipalities (in some way in proportion to the population to be served by the regional system); or a regional contracting agency, again jointly funded and responsible for contracting out waste collection, transportation, treatment and disposal.

The institutional concept, under any regional context, envisages the distribution of the ownership of the new regional facilities (including landfills) to joint inter-municipal public utilities. The owner of all the facilities to be acquired in the course of project implementation and financed by grants/loans would become the regional enterprise, to be founded by interested municipalities in the operation areas. It would be either a publicly owned communal enterprise or a joint stock company owned jointly by all the municipalities participating in the region. Examples exist in EU member states of inter-municipal associations being formed with a similar purpose.

BOX 8: Key tasks and responsibilities of the regional waste management body

- Preparing/updating waste management plans at regional municipal level.
- Preparing amendments to existing municipal waste management regulations as necessary for the development of a regional waste management system.
- Exercising ownership of all regional waste management assets, including old dumpsites.
- Obtaining the required permits for waste management facilities.
- Establishing tariffs and collecting fees for the waste management services delivered.
- Preparing competitive tender documentation for the provision of waste management facilities and services (including, eventually, municipal waste collection).
- Awarding contracts/franchises to appropriately experienced private sector companies for the provision of waste management facilities and services.
- Monitoring and controlling the performance of contractors/franchisees to ensure that the services provided are of an appropriate quality and in accordance with contract/franchise conditions.
- Developing and implementing a public awareness and communications campaign.

BOX 9: Tasks and responsibilities of the Association of Regional Waste Management Centres of Lithuania (RATCA)

The association was established in 2005 and includes most of the regional waste management authorities. It serves to provide a unified voice to the government and industries.

The objectives of the association are:

- To promote regional waste management.
- To share information and best practices to assist new regions with programme start-up and expansion.
- To expand waste diversion programmes, thereby decreasing municipal dependence on landfills.
- To secure sustainable funding for waste diversion through the creation of a multi-material stewardship board.
- To work with local authorities to ensure that all municipal landfills operate according to current regulatory requirements.
- To explore economic opportunities for developing processes for recyclable materials.

The municipalities participating in the region need tailor-made technical assistance on the collection of solid waste, waste reduction/recycling and the collection of waste fees. The scope of expertise required by the individual recipients in the region ranges from landfill operation and waste logistics to collection technology and public awareness/relations, as well as commercial management issues and tariff calculation.

Expertise is also needed for the establishment of a joint waste monitoring and control system for the operational area. The landfill operation company also needs appropriate operational know-how, which can be provided by a private partner and/or technical assistance in the initial period.

Annexing this pool of know-how to the regional body in the initial operational period by an international training facility may contribute to achieving economic and political independence from specific interest groups (such as political parties), important for its technical and supervisory functions.

A case study of regional waste management in the region of Turku, Finland, is available in Annex 2.

Chapter 5
**Funding the modernisation
of municipal solid waste management**

The costs of modernising the MSW management service depend on the number, type and capacities of the additional facilities required. Indicators for the approximate unit costs of new waste management facilities of different types exist. However, actual costs will depend on the technologies selected (including those for waste recovery and recycling), local conditions, economies of scale and, especially for landfilling, on the costs of acquiring suitably located land for which the necessary permits can be obtained.

Funding through public funds

Rising levels of waste generation and an increased focus on preventing the harmful environmental impacts of disposal necessitate substantial capital investment. Many municipalities in the SEE region are too small to support their own capital investment for regional waste management and improved environmental compliance. Regional structures will require not only capital, but also funding for technical assistance to support the development of the appropriate organisational and financial structures that will ensure a sustainable service in the long term.

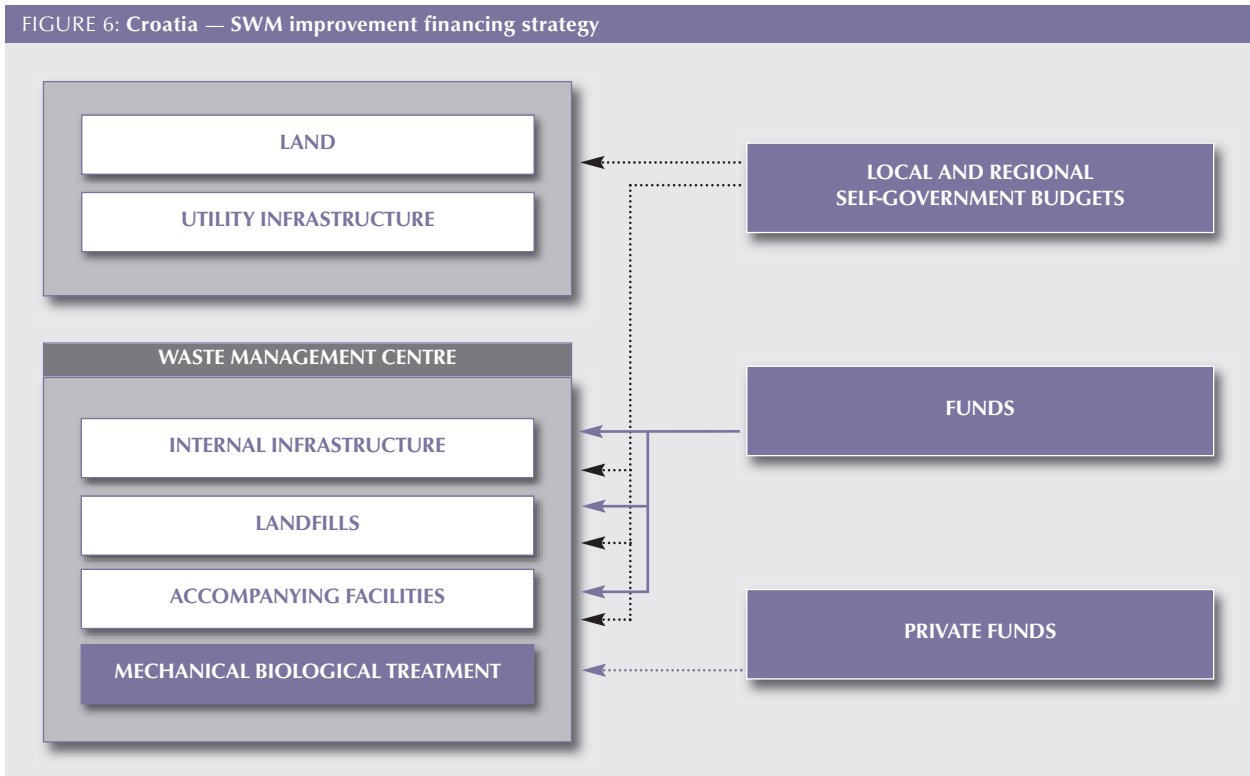
Figure 6 illustrates how funding for the improvement of MSW management in Croatia is planned to be obtained from several mixed sources.

It appears reasonable to assume that in most cases the capital for facilities and for infrastructure development, required for the modernisation of municipal MSW management, may initially need to be financed — or co-financed — from public funds at either national or local government level. This is particularly relevant for “existing waste”, that is, for the closure of existing landfills and dumps. In addition,

TABLE 4: Main possible sources of financing for the implementation of EU waste legislation

TYPE OF CAPITAL	SOURCE
Budget	State
	Municipal
	An environment fund (budgetary or extra-budgetary) – income from levies
Grants	European Union Instrument for Pre-accession Assistance (IPA)
	Other international donors
Loans	International financial institutions (IFIs)
	Bilateral financial institutions
	Commercial banks
	Bonds issued by central or local government authorities
Private capital	Public-private partnership arrangements
Extended producer responsibility	Waste producers (measures they take themselves)
	Charges paid by waste producers to the waste management service provider

FIGURE 6: Croatia — SWM improvement financing strategy



it can be expected, at least initially, that municipalities will also have to take responsibility and bear the main financial burden for specific waste streams, such as municipal organic waste and/or medical waste.

The EU and other international financial institutions provide financial assistance (e.g. IPA) for waste management development projects. In addition, most SEE countries also receive allocations from the central budget or state environmental funds for MSW management modernisation. In developing and planning the implementation of their waste management strategies, SEE countries must investigate various sources of financing for the modernisation of the sector. At the same time, in all SEE countries the capacity to develop and prepare projects suitable for EU grant co-financing is generally weak.

Private sector participation

The present manual does not advocate higher private sector participation (PSP) in regional waste management. This is only one of the available options for financing MSW management and the decision to involve the private sector to a greater or lesser degree should be taken on a case-by-case basis and should be informed by an analysis of the risk involved.

BOX 10: Albania — Sharra landfill project

The goal of the project is the reorganisation of the current landfill and its environmentally safe operation, including the construction of a new waste discharge field next to the existing area. The project comprises the reorganisation of the site, the development of a collection system for leachate, as well as the construction of a surface water collection plant (for rain water); a biogas capture network; inner road networks; an office area; and a waste segregation plant (the latter enabling the employment of members of the Roma community, who currently make a living through the same activity).

The total cost of the project is EUR 6 million. This sum can be broken down to EUR 3,781,919 for construction work; EUR 1,818,081 for equipment; and EUR 400,000 for technical assistance. The contract was signed in May 2007 between the Ministry of Public Works, Transport and Telecommunication (MPWTT) and the winning company. Confirmation of a loan transfer from Artigiancassa Bank was given in August 2007 and the work started in September. The project timeframe is two years, until September 2009. After the completion of the project, the plant will be operated and managed by the Tirana waste management company.

Potential benefits and risks of PSP

The introduction of PSP involves a number of potential benefits, as well as risks, which the municipality must assess before making a final decision.

Benefits:

- A private company brings capital for investments or already has equipment available.
- A private company brings expertise with respect to SWM from either local or international activities and may help municipalities in capacity building.
- Since private companies have no geographical limitations, they will have a larger working area and cover more municipalities, giving them greater flexibility.
- The extent of a private company's activities brings economies of scale into play and therefore improves efficiency.
- A contract with a private company describes the activities to be performed by the private company and is therefore a guarantee of service levels.
- The municipality stays in control by means of the contract. During the contract term the private company is obliged to fulfil the contracted requirements; however, the municipality is free to cease cooperation once the contract expires.
- Competition will result in an optimum price/quality ratio.

Risks:

- The lack of an adequate waste fee collection structure may result in insufficient financial means to conclude a contract.
- Local politicians have to accept a certain independence of SWM services. Their ongoing influence over collection activities is no longer possible.

- If an insufficient number of private companies are interested, competition may not be optimal, resulting in a less than optimum price/quality ratio.
- If the municipal organisation is not developed — for example because of various historical changes in the number of municipalities — the control function of the municipality may be insufficient.
- Poor-quality tender documentation may result in the need to make additional arrangements. The private company that already has a contract may misuse its position and set unfavourable conditions for the additional services.

Principal forms of PSP

There are a number of alternative forms of PSP. However, based on international experience, only contracting and concession are suitable in the field of SWM services. Contracting is generally suitable for collection activities and will usually have a duration of between three and five years. In particular situations — for example if a high level of investment is required — the contract may be extended to seven years. A concession is appropriate if investments in buildings (i.e. transfer stations) or facilities (i.e. a landfill) are envisaged. The relatively long depreciation periods for these investments require a longer duration of the agreement (15 or more years). In addition, attention must be paid to the conditions for the handover of assets after the concession expires.

Stimulation of PSP

Aside from the measures presented here, PSP should be stimulated on a case-by-case basis. It is therefore important to inform local self-governments about the opportunities that private sector involvement can offer, for example by developing guidelines. In addition, a matchmaking process to bring interested private companies into contact with municipalities can stimulate PSP.

BOX 11: Measures for stimulating PSP in SWM services

- **Stimulate competition:** A bigger number of interested private companies will usually guarantee better services for a lower price. The opportunity to contract out waste collection by the industrial and commercial sectors offers interesting opportunities to gain experience and to increase competition.
- **Set the institutional structure:** A stable institution at the municipal level makes the municipality a stronger party in the process of tendering and contracting. On the other hand, a stable organisation within the municipality will offer a better perspective for private companies to do solid and sound business.
- **Create an enforcement structure:** Waste collection and disposal always costs money and therefore may stimulate illegal activities on the part of waste generators. A clear inspection and enforcement programme, including a system of penalties, set up by the municipality will discourage and reduce illegal behaviour.
- **Lower the threshold for entrance:** This can be done by making investments in facilities (collection trucks, landfills etc.) in an alternative way and by having these facilities available by through lease to the private company.

Chapter 6
**Reforms to achieve cost savings
and more efficient operation**

Organisational improvements

Under the current institutional set-up, waste utilities in the SEE region have little incentive to operate efficiently. Utilities are often treated as a part of the political apparatus of the municipalities, rather than as efficient service providers. The municipalities have control over the utilities, while in return the utilities maintain the waste service based on imposed tariffs. This in turn affects the consumers, who blame the waste utility for the quality of services.

When analysing the possibilities for attracting financing to improve waste management, in addition to preparing projects for financing and implementation from a strictly technical perspective, it is also essential to plan institutional reforms focused on increasing the service providers' operational and financial performance and service provision efficiency. From a strictly cash-flow perspective, improved financial performance on the part of service providers and cost recovery can be achieved by: (1) reductions in operating costs; and/or (2) increased revenue generation. It therefore makes little sense to try to improve revenue generation without reducing operation expenses through increased efficiency in service delivery.

Discussions on organisational improvements can include a wide range of possible strategies and changes in a waste utility. Below, a set of measures are discussed that can: (1) enhance the performance of the organisation; and (2) contribute to reducing operating costs, or to enabling improved service provision without corresponding increases in costs.

Strategic planning for the utility

Strategic planning is a process during which an organisation defines its strategy, or main direction, for a multi-year period, and makes decisions about the key measures to be taken. The resulting strategy contains specific goals to be reached; resource requirements, such as capital and human capacities; and a timetable. The strategic plan provides an input to plans covering shorter periods, especially annual plans and also functional and divisional plans. In addition to determining the company's desired future position in terms of markets, service areas, mergers and acquisitions, the strategic plan may also cover functional areas of operation, such

TABLE 5: Reform — Introduction of strategic planning within the organisation

Key stakeholders	Mainly waste utility management, and to a lesser extent regulators and owners of utilities
Main impacts	<ul style="list-style-type: none"> • Clear priorities • Matching of resource needs and resources • Smoother development, as annual plans are not isolated but linked through the strategic plan • Ultimately cost savings and improved services
Time need	A few days every year
Cost level	Relatively low. It requires management time and possibly, but not necessarily, some consultant time

as sales, production, finances, research and development, information technology, quality control, marketing and human resources.

Solving the many challenges facing waste utilities in SEE countries requires a time horizon of more than just one year. Many of the foreseen investments require more than three or four years. The resource needs of all the measures combined are massive, thus not all the measures can be implemented within one year. Some of the organisational or tariff changes need a gradual, multi-year implementation. National policies and the adoption of EU regulations also have a planning horizon extending into the next decade. All these factors imply that multi-year strategic plans are essential for waste utilities in the region.

More or less all Western European waste utilities create strategic plans. The practice is also widespread in the new EU member states. Some waste utilities in the SEE region already employ strategic planning, while others operate with annual plans. Some utilities are just beginning to do planning on their own, since strategic goals, including investment schemes, were formerly set by the central government. We are also aware of utilities in which planning is essentially non-existent: decisions on operation are made on a daily basis without any reference to future goals.

While emphasising the importance of strategic planning for waste utilities, we will not go into details here with regards to the planning process.

Benchmarking

Waste benchmarking is a principal means of reaching the goals of waste management and a key element in developing sustainable operations. Benchmarks can be set in terms of various indicators:

- Status of project preparation aimed at improving existing (inappropriate) waste management practices.
- The environmental risk of non-compliant landfills expressed through pollution indicators over the catchment area.
- The efficiency of operations expressed according to:
 - the percentage of the population covered by the organised service in a given area;
 - the coverage of a given area with planning documents (e.g. waste management plans);
 - fee collection efficiency and cost-recovery rate.
- Waste recovery/recycling for the following priority streams:
 - the percentage of packaging waste from the total generated quantities being diverted from landfilling by means of recycling;
 - the percentage of biodegradable waste from the total generated quantities being diverted from landfilling.

The above examples enable the municipal and/or funding authority to evalu-

ate service providers and other entities involved in terms of their contribution to the goals of waste management. In essence, benchmarking provides a methodology for evaluating the status of a waste management system and planned measures. These can also help in evaluating the implementation of regional/local waste management plans.

When setting the benchmarks, it is also worth considering their usefulness in revealing conceptual problems and in monitoring the success of the measures applied to overcome these problems. Benchmarking provides incentives (the “stick and carrot” approach) for the various parties involved in waste management in the process of obtaining funds to improve existing practices.

Reforms in relation to human resources

The modernisation of solid waste management in SEE countries in order to meet the requirements of the EU waste directives also requires capacity building within the responsible institutions and organisations at national and local level. Without sufficient and suitably trained staff, systems for waste management planning, regulation and enforcement cannot be effectively implemented. It is therefore important to ensure that adequate funds are provided to enable the responsible institutions at national and regional/local level to perform their functions effectively.

Many waste utilities in the SEE region are subject to poor management practices in relation to the planning of activities, communication with customers, and control. These problems contribute to the poor cost-recovery and tariff collection rate and have a direct impact on the low bankability of the utility and its investment projects. Municipal waste utilities often employ more people than required for providing the service, leading to lower labour productivity and higher labour costs. Strengthening human resources is a crucial challenge in order to improve the operational efficiency of waste utilities and raise service standards.

Defining the objectives

Labour restructuring in the waste utilities is very sensitive from a political, social and economic point of view, thus the strategy and objectives should be properly defined and communicated. If the objectives are vague, not credible or poorly articulated, it will be more difficult for the utility management to secure the support and resources needed for labour reform. One tool that can help in clarifying objectives is strategic planning, in which the ultimate desired outcomes are carefully described and used as a basis for setting the objectives. Special attention must be given to stakeholder involvement and communication.

Assessing the size and scope of labour restructuring

One of the first steps in developing a labour programme is to estimate the extent of the labour restructuring that is needed in terms of numbers, skills and work practices. This usually involves carrying out a systematic staffing assessment that enables the management to determine the size and scope of any workforce re-

structuring, including potential downsizing. There are three tools that can be used when carrying out the staffing assessment and defining the size and scope of labour restructuring:

- staff audits or personnel inventories;
- benchmarking;
- workforce analysis.

In practice, these are related and often used in combination in a comprehensive analysis.

Staff audits or personnel inventories

A staff audit is an essential first step in assessing labour issues in the utility. It provides an up-to-date analysis of the workforce and is the basis for subsequent benchmarking and workforce analyses. Staff audits also create the necessary database for analyses of the costs of alternative severance and pension strategies.

Benchmarking

Staff costs are a major component of operating costs. Benchmarks can be useful in gaining an understanding of staffing levels and, consequently, for estimating the extent of any over-staffing. The process of benchmarking will help identify the main problem areas in utility operation, including in terms of the competitiveness of staffing levels and labour productivity. Labour benchmarks are also used as a tool for monitoring and improving performance and competitiveness.

An important indicator for estimating staffing needs and reducing redundant workforce is the number of staff per 1,000 households. Many utilities in the SEE region report a higher number of staff per 1,000 households than developed countries. However, it should be noted that, besides internal labour efficiency, there are other factors influencing the value of this indicator, an important one being staff qualification. When evaluating the relative performance of utilities, the degree to which activities are outsourced should also be considered. A utility may have a low indicator value because its internal operations are efficient, or because many of the activities are outsourced, or due to a combination of the two. Likewise, a waste utility without any meaningful outsourcing may appear to have a low level of efficiency even when this is not in fact the case.

Workforce analysis

The purpose of the workforce analysis is to identify staffing requirements at the unit or operational level. A workforce analysis will help the utility managers to:

- identify the levels and types of staff needed for future requirements;
- make more informed decisions on the organisation of severance plans;
- avoid the loss of critical skills (“adverse selection”).

BOX 12: Steps in labour reform

- Defining the objectives
- Assessing the size and scope of labour restructuring
- Developing strategies and options for labour restructuring
- Developing key elements of a labour programme, including training and the motivation of management staff and employees

BOX 13: Examples of other labour benchmarks

- Gross or net revenue per employee
- Total payroll costs (all employment-related expenses) per employee
- Total/functional labour cost as a percentage of sales
- Salary levels by function (adjusted to allow comparisons)
- Hourly wage rate (standard and overtime)
- Average weekly hours per worker
- Units produced per work hour (unit productivity)
- Product/service line revenue per staff hour/full-time equivalent employee
- Training in person-days per year

Strategies and options for labour restructuring

The World Bank toolkit “Labour Issues in Infrastructure Reform” shows that, with careful planning and stakeholder involvement, labour issues can be adequately addressed during the infrastructure reform process. The toolkit provides options and guidance on carrying out labour reforms, some of which are presented in Table 6.

Training and motivation

Training

Training is an important aspect of human resources development and is strongly interrelated with organisational development. Knowledge and skill deficiencies among existing staff are a result of inappropriate education levels but also of a lack of personnel policies and strategy to attract and retain qualified staff. Training should be formulated with respect to the necessary capacity development and existing knowledge gaps and weaknesses.

Areas in which training and capacity building are urgently required include business management; technical expertise; consumer awareness; needs assessment techniques; and processes for facilitating dialogue and cooperation between utilities and the public. Deficiencies in personnel capacity in many SEE countries have been tackled through technical assistance programmes funded mostly by external

sources. For example, the training of, and hands-on technical assistance to, utility staff given by international expert teams is a key element of programmes in the region implemented by the German bank Kreditanstalt für Wiederaufbau (KfW). Such initiatives will continue in the future: a training programme targeting the staff of 55 water utilities is to be launched in Albania in 2009. However, the management of utilities should not rely only on ad hoc external training but must analyse their training needs and develop training strategies and plans based on specific weakness in the area of human resources and in line with the overall organisational development.

Motivation

Job performance depends not only on staff abilities but also on staff motivation. Developing professional skills through training is essential in order to keep staff motivated. A range of further incentives, such as extra pay, career opportunities etc. can also boost motivation levels. Incentive packages can be designed for the management responsible for implementing the reforms.

TABLE 6: Options and guidance on carrying out labour reforms

TYPE	CHARACTERISTICS
"Soft" options	Application and enforcement of existing workplace regulations. Measures include: hiring freezes, payroll management, and the transfer of staff to other departments.
Early retirement and redundancy	<ul style="list-style-type: none"> • Voluntary departure options that provide incentives for people to leave voluntarily, either through an early retirement programme or the provision of generous severance packages. • Compulsory redundancy options, severance pay packages, retraining and redeployment packages.
Restructuring of the workplace	Measures such as administrative leave, job-sharing, part-time work, and, in some cases, the shedding of non-core businesses. Staff reduction and an increase in operational efficiency can be expedited by outsourcing certain activities via service contracts. The outsourcing should be introduced after competitive bidding and might cover, for example, invoicing, laboratory tasks, vehicle maintenance and information technology.

Chapter 7
**Tariff reforms and
improved revenue generation**

Environmental taxes and user charges — also referred to as tariffs or fees — as well as other common economic instruments play a significant role in the planning and implementation of environmental policies. Due to the variety of concepts regarding the role of economic instruments in practice, there is no generally accepted definition of “environmental taxes” in the literature. According to the definition generally accepted by the EU and the OECD, an environmental tax is a charge based on a physical unit that has a proven and specific negative impact on the environment. A distinction is made between “taxes” and “user charges”: taxes are usually defined as “compulsory unrequited payments to the general government”, while user charges are “compulsory required payments to either the general government or bodies outside the general government”². The main distinction is therefore that taxes are often payments earmarked for certain purposes, while the role of charges is mainly to raise revenues to cover specific service costs or for common use by environmental funds. Environmental taxes and other economic instruments used in solid waste management will be discussed in Chapter 8. The present section refers to user charges, and the terms “tariffs” and “user charges” are here used inter-

TABLE 6: Tariffs for municipal solid waste in SEE

COUNTRY	HOUSEHOLDS	OTHER USERS	REMARKS
Albania	Flat annual rate: EUR 13 to 33/year	Flat annual rate: EUR 45 to 1,350/year	Rates are set by local authorities
Bosnia and Herzegovina	Mostly monthly rates based on surface area of residential premises: EUR 0.05 to 0.4/m ²	Varies significantly based on region/municipality and type of industry	Rates set by local authorities; collected by service providers
Croatia	Monthly rate based on surface area of residential premises: EUR 0.05 to 0.11/m ²	Monthly rate based on surface area of commercial premises: EUR 0.14 to 0.2/m ²	Rates set by local authorities; collected by service providers
Kosovo (under UNSCR 1244)	Flat monthly (?) rate: EUR 3.5 /household	Flat monthly (?) rate based on source of waste	
FYR Macedonia	Monthly rate based on (1) surface area of premises: EUR 0.01 to 0.05/m ² ; or (2) flat rate: EUR 1.5 to 5.0/house	Monthly rate based on (1) surface area of premises: EUR 0.02 to 0.08/m ² , or (2) flat rate: EUR 1.7 to 7.5/user	Rates set by local authorities; collected by service providers
Montenegro*	Mostly monthly rates based on surface area of premises: EUR 0.03/m ²	Mostly monthly rates based on surface area of premises, but adjusted according to amount of waste generated	Rates set by local authorities; collected by service providers
Serbia†	Mostly monthly rates based on surface area of premises: EUR 0.04/m ²	Mostly monthly rates based on surface area of premises: EUR 0.12/m ²	Rates set by local authorities; collected by service providers

Source: PEIP Survey, February/March 2009

* Household tariffs in Podgorica are given for indicative purposes

† MSW management tariffs for Belgrade are given for indicative purposes

changeably to refer to the amount, or schedule of charges, that a customer pays for the solid waste management services received.

Tariffs for SWM are a commonly used instrument: in principle, waste generators pay for the collection, transportation and disposal of waste. It is an instrument used by both public and private service providers, and is directed at “internalising” the externalities associated with the collection, transportation and disposal of waste. The internalisation of costs is essential in order to achieve efficiency, as it leads to the most efficient use of resources. Table 6 illustrates some of the SWM tariffs charged by public utilities in SEE.

There are a variety of methods currently in use in SEE countries to levy and collect charges. The main methods for pricing the provided service are calculated: (1) on the basis of households (i.e. a flat monthly or annual rate per household); (2) on the basis of residential/property surface area; and (3) on a per capita basis.

In some SEE countries, where a waste utility, either public or private, serves several settlements (e.g. a town and the surrounding settlements, or sometimes a whole region), a uniform tariff is set for the whole service area even though the cost of serving the individual settlements differs. Such practices inevitably translate into cross-financing between service users.

In terms of current waste tariffs, charges are not based on the weight or volume of waste. Also, there is a marked difference between the charges levied to commercial enterprises and industry compared to household charges: the higher charges for enterprises represent another form of cross-financing. The justification often given by municipal authorities in response to both these issues, but especially with respect to cross-financing, is that this approach to setting tariffs has been inherited from the earlier system. Nevertheless, the true reasons are partly social and partly political: policy makers are more willing to charge enterprises, as they are perceived as being able to afford higher prices than households.

The main advantage of tariffs that are not based on weight or volume of waste generated is that the calculation and collection of revenues is relatively easy and cost-effective for the service providers. However, there are many disadvantages inherent in the current tariff system design:

- Since charges are not based on weight or volume of waste, they: (1) do not target the amount and pollution content of waste generated; and (2) do not encourage recycling, since there is no provision for the separation of waste at source.
- Waste collectors may encourage the principle of exclusion by targeting mainly those who are willing and who have the ability to pay. They may therefore target high- and medium-income households.
- The higher tariffs charged to enterprises have an impact on the competitiveness of local businesses. Furthermore, industrial customers are prompted to look for alternative ways to manage their waste, such as organising waste transportation and disposal (at times on illegal dumps) using their own resources and assets, therefore reducing the revenues of the service providers.

- Cost-revenue estimates carried out in several countries in SEE show that the operational costs of public service providers are usually much greater than the benefits (excluding social and environmental benefits). In other words, the tariffs do not meet the principles of full cost recovery (pricing) or of charging for environmental degradation in the management of wastes.
- Lack of adequate enforcement capacity and inappropriate pricing have led to waste generators and waste collection companies, both public and private, disposing of waste in illegal dumps.

In addition, there are serious problems throughout the SEE region in terms of tariff (fee) collection, as detailed in Table 7.

In the SEE region as a whole, current tariffs and fee collection efficiency often fall short of full cost recovery for the service provided, especially in regions with very low income levels. It is common practice for the missing amount to be covered by general municipal budgetary allocations. A number of cases have been observed, particularly in rural regions, where the service itself — mainly in terms of the frequency of waste collection — is planned and carried out according to the expected income. There are also cases (mostly in larger cities) where public service providers state that they collect more income from waste tariffs than they expend on the service, and that this excess income is used to support other services that they provide. In many cases, public utilities provide not only waste collection and transportation services, but also water supply, wastewater management, street cleaning etc. An example of where revenues generated from waste tariffs exceeded the costs of the service provided was observed in municipalities in the south east region of the former Yugoslav Republic of Macedonia during an analysis carried out in preparation for a pre-feasibility study. Similar cases can be found in a number of other countries or regions in SEE.

TABLE 7: Tariff collection ratios in SEE

COUNTRY	NATIONAL AVERAGE LEVEL OF WASTE TARIFF COLLECTION
Albania	60% for households; 90% to 100% for businesses
BiH	60% to 70%
Croatia	n/a
Kosovo*	55%
FYR Macedonia	70% for urban centres; 30% for rural areas
Montenegro	40% to 50% for households; 60% to 80% for businesses
Serbia	n/a

Source: PEIP Survey, February/March 2009

• As defined under UNSCR 1244

It can be concluded that in most cases municipalities in the region are caught up in a vicious circle of experiencing poor operational efficiency and encountering waste service performance problems, which lead to inadequate cost recovery and a lack of financing for service modernisation. Raising the level of cost recovery by increasing tariffs and improving tariff collection efficiency appears to be desirable and reasonable in terms of fiscal soundness and as a way of funding service modernisation.

Tariff design principles

Designing fair and appropriate tariffs for any public service is a major challenge. In general, tariffs can affect the performance of the public utility supplying the service, the welfare of the community, and the use of resources across the economy.

Achieving cost recovery is perceived as the main aspect and common basis of tariff design, especially in EU policies as well as by international development agencies and international financial institutions (IFIs) that provide funding for infrastructure improvements in developing countries. Cost recovery implies raising revenues to finance various aspects of public service provision through tariffs. According to the “Guidelines for the Financial Governance and Management of Investment Projects Financed by the Asian Development Bank” (2001), for example, cost recovery includes collecting revenues to fund current operations (e.g. waste collection, transportation and landfilling, including landfill aftercare); future investments; income redistribution; the minimisation of waste; containment of demand; and the efficient management of the enterprise. However, others point out that “tariff setting goes beyond cost recovery, since a tariff is a tool of public policy that can be used for a variety of social, economic and financial purposes. Cost recovery, in contrast, strictly means collecting payments from people who have benefited from investment. Recovering cost from users is not sufficient, however, to ensure that the facility will be able to sustain its operations indefinitely. A tariff, in contrast, is a tool to help manage the facility, and recovering the cost is not necessary if the investment is provided as a grant to users, with no expectation of reimbursement”³. The same source lists the following five common goals for tariffs: (a) good governance; (b) financial sustainability; (c) distributive justice; (d) economic efficiency; and (e) fair pricing. Clearly, with the exception of financial sustainability, these are the goals of society rather than of a utility.

Without going deeper into the debate, we provide below an overview of the basic principles for MSW tariff (re)design, which is perceived as a major challenge in the SEE region.

Cost recovery

Two important aspects of financing need to be considered in relation to any waste management strategy and implementation plan:

- How to finance capital investment expenditure for the provision of waste management facilities and equipment.

- How to finance the recurrent costs — e.g. operation, maintenance, replacements — incurred during operation.

A policy for recovering the costs of waste management therefore needs to determine: (1) the total amount of recurrent funding needed each year; and (2) how this will be provided. In principle, there are two broad ways of recovering the costs of waste management:

- Through tariffs (user charges), where a charge is paid directly or indirectly by the users of the service.
- Through charges levied on a specific product or activity, where the resulting revenues are earmarked for waste management-related expenditure, such as financing the provision of waste recycling facilities.

As regards EU member states, the full costs of providing waste management services are substantial and are rising in real terms. As these costs have risen, so governments in EU member states have become increasingly reluctant to allow these costs to be met from central or local government taxation. In addition, Article 10 of the Waste Landfill Directive states that “Member states shall take measures to ensure that all of the costs involved in the setting up and operation of a landfill site, including as far as possible the cost of the financial security or its equivalent (...) and the estimated costs of the closure and after-care of the site for a period of at least 30 years shall be covered by the price to be charged by the operator.” In accordance with the polluter pays principle underpinned in the Waste Framework Directive, most member states have already reduced or eliminated any subsidies for waste management. This, of course, means that organisations directly responsible for the provision of waste management facilities and services in the EU are required to move towards a position where their service charges (tariffs) cover the full costs of the services provided, that is, sufficient revenues must be generated through tariffs and/or other economic instruments to cover annual cash outflows.

However, given the different positions of central and local governments in the SEE region, the main question regarding the move towards cost recovery (which, as mentioned earlier, is not the case at present) is whether tariffs and other economic instruments should cover only the recurrent costs (provided that capital investment expenditure is provided as a grant and with no expectation of reimbursement), or — as is the case within EU member states — both investment (debt service obligations) and recurrent costs. In any case, the minimum amount of recurrent funding required will be that necessary to finance the direct operating and maintenance expenditures. However, if the objective is for the facility or service to become self-financing, then it will also be necessary to generate and set aside sufficient funds to maintain asset values.

The polluter pays principle

Another fundamental principle for tariff design, and one that is closely related to cost recovery, is the polluter pays principle, which is also known and referred to

as “extended producer responsibility”.

In 1972, the OECD Council adopted the Recommendation on Guiding Principles concerning International Economic Aspects of Environmental Policies, which incorporated the first formulation, at the international level, of the polluter pays principle. It provided that:

“The principle to be used for allocating costs of pollution prevention and control measures to encourage the rational use of scarce environmental resources and to avoid distortions in international trade and investment is the so-called polluter pays principle. This principle means that the polluter should bear the expenses of carrying out the above-mentioned measures decided by public authorities to ensure that the environment is in an acceptable state. In other words, the cost of these measures should be reflected in the cost of goods and services which cause pollution in production and/or consumption. Such measures should not be accompanied by subsidies that would create significant distortions in international trade and investment.”

The rationale behind the adoption of the polluter pays principle was to encourage sound environmental management and to introduce methods for allocating the costs of pollution to avoid distortions in the prices of products entering the international market. The main goal was to keep new environmental protection measures from having to be financed by governments in the form of subsidies, and to prevent differences in subsidies between countries from causing significant distortions in international trade and investment. In effect, the polluter pays principle seeks to shift the responsibility for dealing with waste from society (i.e. taxpayers) to the entities producing the waste. It should also be mentioned that the polluter pays principle does not refer to a “fault”. Instead, it favours an approach concerned with repairing environmental damage, that is, where the polluting party pays for the damage done to the environment.

As for production processes (industries), the basic “ideology” of the polluter pays principle is that the price of a product or service should fully reflect its total production cost, including the cost of all the resources used. In effect, the polluter pays principle seeks to internalise the cost of waste disposal in the cost of the product, meaning (at least theoretically) that producers will improve the “waste profile” of their products. The underlying rationale is that the lack of proper prices for, and the open-access characteristic of many environmental resources, means that there is a severe risk that overexploitation will take place, leading to eventual severe destruction. The polluter pays principle seeks to rectify this by making polluters internalise the costs of the use or degradation of environmental resources.

Since its introduction, the concept underlying the polluter pays principle has influenced environmental policies in economically developed countries. Over the years, the principle has also been explicitly incorporated in a number of international environmental instruments. Furthermore, it has been introduced in all recently developed legislation and waste management strategies in SEE countries.

In terms of municipal solid waste management, a thorough pursuit of the polluter pays principle leads to: (1) introducing SWM tariffs based on weight or vol-

ume of waste, instead of having flat rates per household or tariffs based on property area; and (2) abandoning the practice of (partially or fully) subsidising expenditures on the provision of waste management facilities and services through general budgetary allocations, by setting charges at levels that enable full cost recovery. These aspects make it difficult to implement the polluter pays principle as a guideline for environmental policy in developing — hence SEE — countries. Although desirable, applying such a policy in practice triggers the need to consider such factors as:

- the state of the economy;
- public acceptability;
- affordability, particularly for the poorer members of society; and
- the enforcement capacities and capabilities of the regulatory authorities.

Affordability, willingness to pay and political acceptability

As a general rule in any democracy, pricing policies for public services can only be sustainable if the resulting tariffs are acceptable for the population at large. Three aspects are directly related to this issue: the affordability of the tariffs; the willingness of the population to pay (accept) the tariffs; and the decision makers' willingness to impose the tariffs. All these aspects are correlated to a determination of the demand for waste management services, as well as to the setting up of applicable and affordable service levels, given that the extent and quality of services provided determine their financial arrangements.

The concept of the affordability of waste tariffs is related to the upper limit that can be charged for waste management services and refers mainly to affordability on the part of households; for enterprises and public institutions, the concept of the affordability of waste tariffs is less important. Affordability thus implies that the amount spent by households for waste services should not be a major part of the household income — that is, it should by no means lead to households having to cut down on basic necessities such as food, water services or heating. However, establishing an upper limit for household charges for waste management can be a serious dilemma and is quite often subjective. When designing a tariff policy, it is therefore essential to carry out an analysis in order to obtain an overview of the average household income, as well as the composition and distribution of that income, based on which a decision can be made as to whether there is a problem of affordability that needs to be addressed.

In tariff design, an overall assessment of waste tariff affordability is often based on macro-economic data regarding average household income, expenditure patterns (e.g. expenditure on food and other basic necessities as a proportion of the total income) and income distribution. If, however, such macro-economic data are not readily available or their relevance is uncertain, special household surveys must be carried out for the purpose. For the SEE region, it is recommended that such surveys be carried out at least during the planning of major investments that will trigger significant tariff increases, with special attention on the substantial effect and

role of the informal economy on household income. Based on these data, an estimate can be made of the percentage of household income used for waste management services at present, and after a planned tariff increase as a result of investment, for various categories of household income levels (e.g. low, middle and high income levels). The cost of waste management services as a percentage of household income, quite often benchmarked with similar available data for other regions/countries⁴, is used as an indication in the assessment of the proportion of households — by category — that are likely to experience problems with regard to their ability to pay increased tariffs. In addition, data (if available) regarding changes in collection rates following a recent tariff increase, and/or other similar information, can also be used in affordability assessments.

The results of the affordability analysis are used to determine planned waste management service and tariff levels. They also provide input to the design of possible subsidy schemes for poorer households.

Willingness to pay refers to the “expected” charge that service users are ready to pay for a given service, or for a given change in service level. The term describes beneficiaries’ perceptions and preferences correlated to the level, quality and price of the service, or changes to them. In assessing the potential effect of a tariff increase subsequent to investments and service improvements, willingness to pay by and large reflects the likely level of increase in payments that will not cause concern to users or affect their readiness to pay for the improved service.

Willingness to pay for waste management services is influenced by a considerable number of factors:

- Current service level (scope) and quality.
- History of changes, in particular to service quality, and past tariff increases.
- Fairness of charges.
- Affordability of tariffs.
- Transparency in tariff setting (i.e. public involvement in the decision-making process).
- Confidence in the service provider (public or private).
- Importance of public health and other environmental issues.
- Past experience with private sector involvement in the provision of public services, if the planned tariff increase is related to service improvement that involves a public-private partnership.

Willingness to pay is commonly assessed and quantified by carrying out special surveys focusing on identifying service consumers’ behaviour. The recommended approach to determining willingness to pay for changes in waste management service levels is to use methods based on hypothetical behaviour, such as contingent valuation or stated preference technique (conjoint analysis).

The third aspect, political acceptability, is also frequently referred to as “willingness to charge”. Basically, the notion refers to the decision makers’ attitude to-

wards increasing user charges for the provision of public services. “Decision makers” refers above all to “formal” decision makers, that is, the political party in charge in a municipality, but also to other actors who can influence the process, such as political parties (other than the one in power), NGOs, development organisations, academia and the scientific community etc.

Bearing in mind that the present discussion is related to waste management tariff design that will lead to increased revenue generation and cost recovery in order to enable the improvement of service provision levels, thus ultimately improved environmental performance and quality of life (which would appear to be a benefit attributable to political decision making), paradoxically the political acceptability of tariff changes is often a critical factor in determining whether or not a project is feasible. Hence, the political attitude to tariff changes needs to be given adequate attention by project developers and investors. Several factors influence political acceptability:

- The difference in time horizons/perspectives between infrastructure investment projects, which typically range from 20 to 30 years; and election terms, which are usually four years.
- The different perceptions of revenue generation risks on the part of investors and political parties.
- Differences between public and political acceptability, meaning that even if an analysis of public opinion demonstrates that an investment project is in principle acceptable to the public, this is often not a guarantee that political actors will be inclined to support it if it demands an increase in tariffs.
- The institutional framework for decision making, which may be such that tariff setting is governed by national legislation, thus leaving local authorities with reduced power to determine the actual level of charges.
- Other factors, such as the degree of democracy in the country, the current political situation, the proximity of elections etc.

Although it is difficult to measure political acceptability precisely, it is recommended, during the development and preparation of large infrastructure investment projects (e.g. to establish a regional SWM system that also includes the construction of a new regional sanitary landfill), to carry out a systematic analysis and to obtain at least a tentative assessment of the decision makers’ attitude toward the investment and their opinion regarding tariff increases.

Types of tariff used in the EU

Charging waste producers for the management of their waste, at a fixed rate and/or at a variable rate depending on the quantity or quality of waste generated, is now universal throughout the EU. Typically, households are charged a fixed rate for waste management services, while commercial and industrial waste charges are usually related to weight or volume. However, EU municipalities are increasingly

TABLE 8: Tariffs for municipal waste management in EU member states (2000)

COUNTRY	HOUSEHOLDS	OTHER USERS	REMARKS
Austria	EUR 53/inhabitant	n/a	Average per year
Belgium	EUR 68 to 83/tonne	n/a	Flat or volume based
Bulgaria	0.1 to 0.4% of property value	Number of containers and value of building	Rates set by municipalities
Czech Republic	EUR 11.6 to 23.2/tonne	n/a	Rates set by municipalities
Denmark	EUR 182/family	n/a	Rate set by municipalities (1996)
Estonia	EUR 16 to 43/tonne	n/a	Depending on municipality and types of container
Finland	EUR 67/tonne	n/a	Average value
France	EUR 116/tonne	n/a	Average value
Germany	EUR 35 to 100/tonne	n/a	Set either according to number of persons per household or by volume
Greece	EUR 6 to 15/tonne	n/a	
Hungary	EUR 1.54 to 1.57/household	EUR 6.8 to 25.2/tonne	Rates set by service provider
Ireland	EUR 2.5/bin	n/a	Different schemes adopted by municipalities (1995)
Italy	EUR 28 to 95 per inhabitant per year	n/a	Depending on size of municipality and region
Latvia	EUR 15.7 to 38.6/tonne	EUR 15.7 to 38.6/tonne	Rates set by municipalities
Lithuania	EUR 0.03 to 0.8/inhabitant/month	EUR 12.96 to 21.64/tonne	Rates set by municipalities or private service providers
The Netherlands	EUR 75/tonne	n/a	Flat annual rate
Norway	EUR 24 to 121/household/year	n/a	
Poland	EUR 46.04/tonne	n/a	Volumetric charge or flat rate. Rates set by municipalities or service providers
Portugal	EUR 6 to 15/tonne	n/a	
Romania	EUR 0.75/inhabitant/month	EUR 50.12/tonne	Rates set by municipalities
Slovenia	EUR 37.96/tonne	EUR 47.32/tonne	Average. Volumetric charges set by service providers
Spain	EUR 15 to 30/tonne	n/a	Depending on quality of service
Sweden	EUR 102/year	n/a	Flat rate per household
UK	EUR 18 to 33/tonne	n/a	Financed from local taxes

Source: (1) Environmental Taxes in an Enlarged Europe; (2) Waste Management Policies in Central and Eastern European Countries: Current Policies and Trends; REC 2001.

turning to variable rate charging (or a combination of fixed and variable rate charging) for the management of domestic and similar waste.

Methods of variable charging range from simply setting a price for refuse sacks, to highly sophisticated systems in which waste containers are assigned to an owner, allowing the producer of the waste to be billed accordingly. The aim of most of these financial mechanisms is to create incentives for waste minimisation as well as waste separation and recycling.

Regardless of the charging method, or combination of methods, used for waste management, progressively raising tariffs to levels that reflect the true long-term costs of managing municipal waste in an environmentally sound manner is the most effective and recommended policy measure for SEE countries. The introduction of such policies will not only ensure that waste management services and infrastructure maintenance are provided, but, in the longer term, will also encourage the reduction of waste that requires disposal and the achievement of full compliance with EU waste legislation.

Tariff reform implementation

As a new pricing policy is selected and a tariff increase schedule is established, the new tariffs need to be put to work in practice. This process may appear to be a relatively simple one, merely requiring a decision to be made by the tariff-setting authorities and the introduction of several administrative changes in record keeping and billing by service providers. However, in a number of cases such an approach to tariff reform has been shown to lead to the rejection of the imposed tariffs. It is therefore wise to put some accompanying measures into practice so that service users will both understand and accept the reasons for the tariff changes.

Firstly, as far as possible tariff reforms should be implemented simultaneously with other utility reform measures (see Chapter 6). Secondly, there is no common model for tariff reform implementation: in most cases a country-specific, or rather a project-specific, approach will be required. As a minimum, in most SEE countries tariff setting, and thus changes, are regulated — although in all cases devolved to local authorities. Furthermore, the decision as to whether or not to increase tariffs is often driven by the political and local institutional and cultural environment. Nevertheless, there are some common logical principles (methods) and steps that can be considered during tariff reform planning: (1) service quality improvement; (2) revenue collection improvement; and (3) education and awareness raising.

Improved service quality

Under the current institutional set-up, public waste utilities have little incentive to aim for efficient operation. An elective set of bonuses and penalties, established arbitrarily, provide weak motivation for efficient work and higher service quality provision. Utilities are often treated as a part of the municipal apparatus rather than as independent and professional service providers. The municipalities employ control functions through the appointment of utility directors, subsidies, the pro-

vision of investment funds and other tools. In return, the utilities maintain artificially set tariffs (quite often low) and provide labour for the municipality. This affects consumers, who in turn blame the utilities for the current state of services.

In such circumstances, given the effect of service users' perceptions and preferences on service quality level, it can hardly be expected that tariff reform will be accepted by the public if the service quality level is not substantially improved. There is also a common debate as to whether service quality improvements should precede the introduction of tariff reforms, particularly if a major tariff increase is planned at the outset; or whether the two actions should, as a minimum, evolve simultaneously.

Improved revenue collection

The ultimate objective of any tariff reform is, of course, the creation of possibilities for achieving financial sustainability (cost recovery) that will, in the long term, result in sustainable waste services and infrastructure maintenance provision. The following measures are important for creating the conditions for improved revenue collection in order to enhance the financial sustainability of service provision:

- Improve the coverage and efficiency of billing and payment collection so as to maximise revenues; introduce and enforce sanctions for non-payment.
- Reduce large differentials in tariffs between households, industry and other users; this is likely to reduce resistance to paying on the part of those who currently pay very high tariffs.
- Settle outstanding payments by public organisations and make these organisations responsible for ongoing payments for waste services.
- Establish a procedure for periodic tariff revision and adjustment that is transparent, that involves the participation of stakeholders, and that is indexed to inflation.
- Develop a programme for gradual tariff increases to cover operational, maintenance, rehabilitation and ultimately investment costs; such increases should take full account of affordability constraints and be part of a strategy for service improvement.
- Introduce accounting systems that conform to international standards.

Education and awareness raising

It is impossible to carry out tariff reform without communicating appropriate information. All project stakeholders benefit from a proper system of information, specifically: (1) service users, with means of assessing the financial and quality performance of their waste service company; (2) utility managers and employees, with means of identifying areas for improvement, adopting realistic targets and convincing authorities of the need for change; (3) central authorities, with means to

BOX 14: Attitude of the public towards waste management

In the new member states, there has been a change in the perception of waste management services. Prior to 1989, waste management was a free service, since which time there has been a slow change of attitude accompanied by a rise in waste fees from zero or a symbolic amount to a more reasonable level. There is usually a low level of acceptance of incineration, but this is also beginning to change since the Waste Incineration Directive set extremely high standards for incineration facilities. The not-in-my-backyard syndrome (NIMBY) when selecting landfill locations has been quite common in new member states. However, there are examples, such as Estonia, where this has been overcome by using an appropriate communication strategy.

identify national trends and investment needs; (4) potential investors, with an indication of performance and potential viability; and (5) international donors, with an identification of priority and feasible areas for intervention, investment support and technical assistance.

National and local governments need to improve information provision to consumers, including the provision of full, regular and reliable information about sector reforms and specific situations in particular locations. The minimum set of information for consumers should include:

- Service standards and norms (e.g. permitted interruptions of service provision).
- Levels of, and rules for establishing, prices and tariffs, including advanced information about changes in prices and tariffs.
- The rights and obligations of service consumers, service providers and regulatory authorities.
- Procedures and forms of conflict resolution.
- The performance of service providers.
- Available privileges and subsidies, and the procedures for and documents required for receiving them.

Chapter 8

Economic instruments

According to the Waste Framework Directive (2008/98/EC), “economic instruments can play a crucial role in the achievement of waste prevention and management objectives.” As “waste often has value as a resource, the further application of economic instruments may maximise environmental benefits.”

As a general rule for developing countries, environmental costs are underestimated and often not fully internalised, thus they constitute external costs to society. A proven approach towards rectifying this discrepancy is the use of economic instruments/tools for environmental protection in balance with the traditional command and control strategies.

Benefits of economic instruments

The major advantage of economic tools is that, at least in theory, they incorporate environmental concerns and costs directly into the market mechanisms. Economic instruments in effect represent policies or actions that provide financial incentives aimed at changing the behaviour of economic actors in order to improve the effectiveness of resource management and protection. The use of economic tools or instruments in environmental policy has long been promoted as an efficient way of achieving environmental goals.

In general, economic instruments are used to increase the flexibility, efficiency and cost-effectiveness of solid waste management measures. They also represent a source of revenue to support waste management policies and programmes.

Specifically, in solid waste management, economic instruments are used to⁵:

- reduce the amount of waste generated;
- reduce the proportion of hazardous waste in the waste generated;
- segregate hazardous waste for special handling and disposal;
- encourage the recovery, reuse and recycling of waste;
- support cost-effective solid waste collection, transportation, treatment and disposal systems;
- minimise the adverse environmental impacts related to solid waste collection, transportation, treatment and disposal systems;
- generate revenues to cover costs.

Economic instruments in waste management

Several sub-categories of economic instruments can be found in the literature, featuring important differences. As explained in Chapter 7, there is no generally accepted definition of the term “environmental taxes”. The Inter-American Development Bank groups economic instruments into three main categories:

- Revenue-raising instruments, which include various kinds of user charges/taxes

mainly for the provision of collection, transportation and final disposal services. The revenues raised from such charges are commonly earmarked for solving a specific problem for which the charge was levied. Examples of charges and taxes that fall under the category of revenue-raising economic instruments include: pollution charges; waste generation charges; waste user charges; waste disposal (tipping) charges; product charges; pollution taxes; presumptive taxes etc.

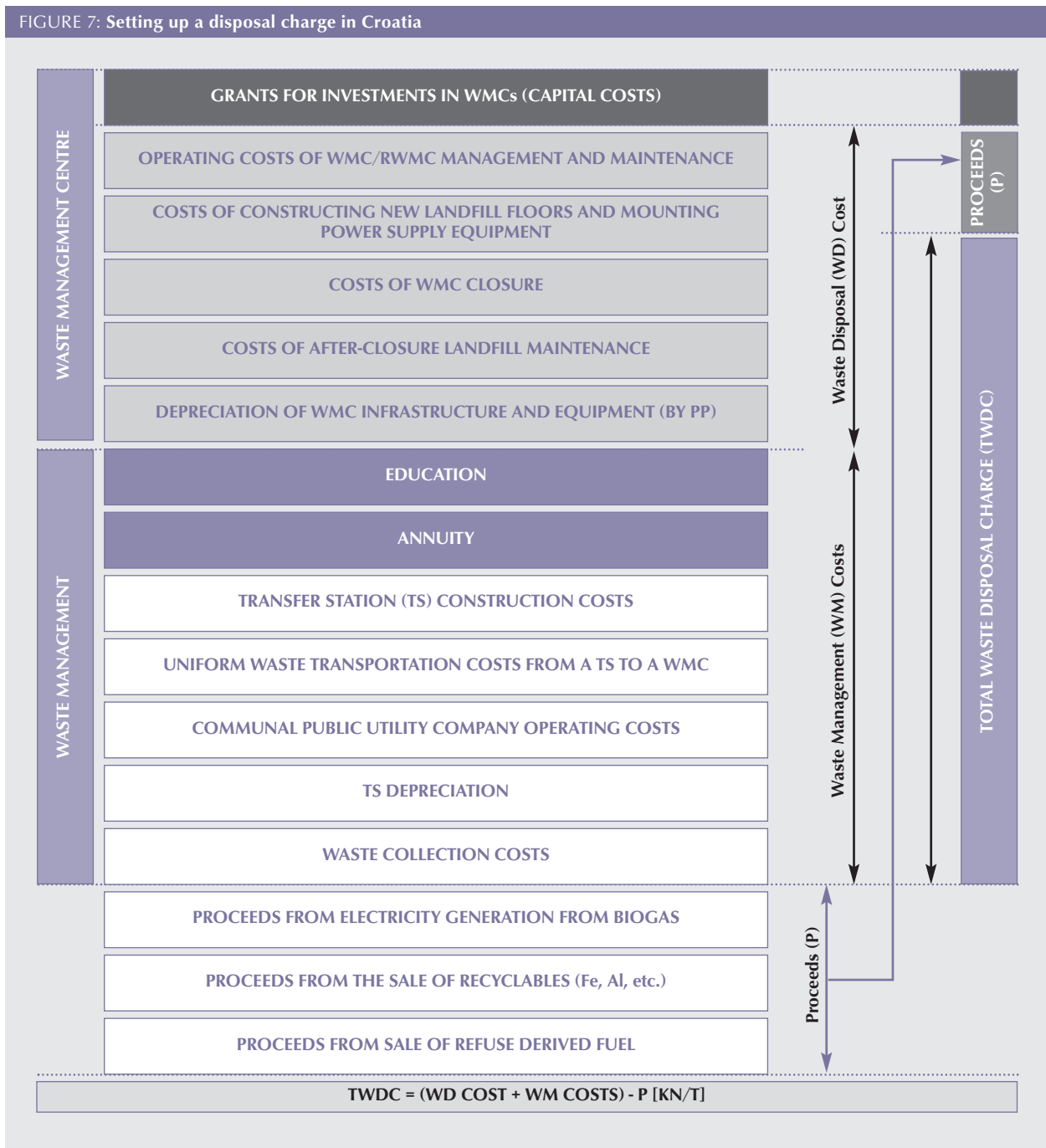
- Revenue-providing instruments, which include various types of subsidies that seek to directly reward desired behaviour (e.g. waste reduction or recycling) rather than penalise the behaviour to be discouraged. Subsidies can be direct payments, reductions in taxes or other charges, preferential access to credit, or in-kind transfers. Examples of revenue-providing economic instruments used in solid waste management include: allowances on property taxes, customs duties, or sales taxes to motivate investment in waste management improvements; charge reduction based on proof of recycling or reuse in reducing waste; tax rebates for pollution savings or energy efficiency; environmental improvement funds; research grants to stimulate technology development etc.
- Non-revenue instruments, which combine the incentive effects of charges and subsidies for the management of solid waste. Examples of such tools include: product life cycle assessment; deposit-refund systems; take-back systems; eco-labelling; disclosure requirements; blacklists of polluters etc.

Below is a brief overview of the economic instruments principally encountered in solid waste management policies and used by the EU member states. Some of these are already in use in SEE countries, thus they can be expected to be spread further and fully adopted throughout the SEE region in the near future. These are: taxes and charges, including user charges, product charges and disposal charges; deposit refund systems; and non-compliance fines.

User charges or tariffs are payments mainly for the cost of providing waste collection and transportation services. Sometimes, and practically as a rule in the SEE region, waste disposal costs are included in the overall user charge levied on households and enterprises. The current practices in terms of calculating and collecting waste user charges/tariffs in SEE, as well as the principles of tariff design, were presented in Chapter 7.

Product charges/taxes are applied to the price of certain products that are considered to cause adverse environmental impacts during their manufacture, use or disposal. Such charges can be found in most EU countries. Examples include batteries, beverage packaging, paper and plastic bags, virgin construction materials, disposable razors, disposable cameras, disposable plates and cutlery, and plastic window and door frames. Product charges are also applied in some SEE countries. Product charges are intended to modify the relative prices of products. In principle, the revenues from product charges are used to finance collection and treatment systems. The most commonly used form of product charge in practice is a tax differentiation on “environmentally friendly” alternatives of the same product types, which leads to more favourable end-prices of these products.

FIGURE 7: Setting up a disposal charge in Croatia



In order to influence the behaviour of all actors in the waste disposal sector, differentiated waste fees for landfilled waste need to be set. The **disposal fee/charge** is designed to:

- Compensate municipalities that accept waste from other areas (basic fee collected at all permitted landfills whether or not they meet set standards).
- Penalise those that landfill waste using lower standards than regulated, stimulating the closure of such landfills or upgrading them to defined standards (surcharge on the basic fee).

The disposal charge structure reflects the differentiated disposal fee types and levels to be collected at the landfill gates for those meeting standards and for non-compliant landfills. In addition, the disposal fee is intended to stimulate the recipients of the earmarked charge (municipalities in which the landfill is located) to act as drivers towards regionalisation.

The basic fee (the A-rate) is a fee per tonne of waste landfilled in any permitted landfill. The landfill operator is in charge of collecting and transferring this fee. The final beneficiary of this fee is the municipality in which the landfill accepting waste from other areas is located. The major goal of this fee is to increase the municipalities' interest in accepting landfills on their territory; and to guarantee a minimal revenue from landfilling for the municipal budget. Of course, it is up to the municipality to agree with the landfill operator on any other compensation.

A surcharge on the basic fee (the B-rate) is charged per tonne of waste landfilled in an operational, officially permitted landfill that does not meet the technical requirements for new landfills. The landfill operator is in charge of collecting this fee. The final beneficiary of this fee is the state environmental fund, which uses such means to provide grants to the waste management sector. The major goal of this fee is to make it disadvantageous to dispose of waste in landfills that do not meet the required parameters for new landfills.

It is possible, under certain conditions, for the landfill operator to use this surcharge to improve a landfill without transferring the charge to the state environmental fund, as agreed between the municipality and the regulator. The level of surcharge to be collected at non-compliant landfills is set to ensure control over the definition (and future increase) of disposal fees at compliant landfills determined by private operators.

The above charges (basic fee and surcharge) are part of the disposal fee, as presented in Figure 8:

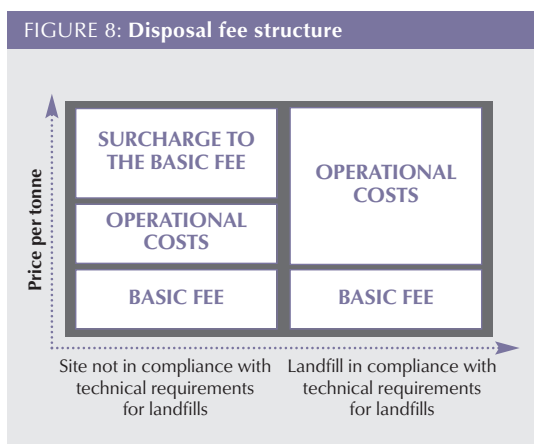
- An existing landfill that meets the technical requirements for new landfills and a new landfill:

Fee = basic fee + operational costs

- An existing landfill that does not meet the technical requirements for new landfills:

Fee = basic fee + operational costs + surcharge

Note: Operational costs include all direct and indirect costs related to landfill



operation (operation, wages, taxes, depreciation etc.)

The above economic tool allows for the operation of existing (permitted) landfills, whether or not they meet the technical requirements, along with new landfills. The ultimate goal is to close all unacceptable landfills.

In developed economies, the landfill charge serves its purpose in diverting waste streams from landfilling and functioning as an incentive to increase recycling/recovery rates.

Deposit refund systems, which include a payment (deposit) on certain products (e.g. packaging). A partial or total repayment is made when specified conditions are met, usually when the product is returned to a dealer or special treatment facility. Such schemes have been in use for many years and are widely applied in EU member states, particularly for beverage containers and, more recently, packaging. Some are mandatory, while others involve voluntary producer responsibility schemes. These schemes are generally very effective and can achieve between 80 percent and almost 100 percent return of packaging waste and used containers. Deposit refund systems are also present in some SEE countries.

Non-compliance fines are usually pollution charges aimed at both revenue raising and achieving compliance with regulations. In some cases, the revenues raised are earmarked for financing general environmental expenditure, while in other cases they are used strictly as a penalty. They can be flat (non-dynamic) fines or they can be linked to the pollution generated. In the first instance they represent command and control measures rather than economic instruments.

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The application of economic instruments

The introduction and implementation of economic instruments should be carefully planned and based on detailed research and assessment studies that focus on understanding complex economic and business linkages. It is vital to establish clear objectives regarding what is expected to be accomplished over a given period of time. The design and application of economic instruments should satisfy a number of criteria, including financial effectiveness, environmental effectiveness, economic efficiency, administrative efficiency, legal applicability and fairness. A comprehensive set of evaluation criteria for the selection of economic instruments for waste management is presented in Box 16.

BOX 15: Ireland: Example of use of economic instruments

In 2002, Ireland imposed a 15 euro cent levy or surcharge (the PlasTax) on plastic bags provided by grocery stores and other shops. It is estimated that this reduced the use of plastic bags by 90 percent. The collected revenue goes to an environmental fund, which planned to spend EUR 35 million on recycling centres in 2003. When the PlasTax was first introduced, a comprehensive education campaign was implemented: pamphlets were sent to each household outlining why the levy was being introduced; how the revenue generated would be used; and how consumers could avoid paying it by using reusable bags.

BOX 16: Criteria for the selection of economic instruments for solid waste management

Environmental effectiveness – Does the instrument lead to the desired environmental improvements, such as reduction in waste generation, increased waste recycling, reduced emissions from transport and disposal?

Economic efficiency – Does the instrument create incentives for investment and innovation towards the reduction of pollution control costs?

Administrative cost efficiency – Are the levels of skill and effort required to implement and monitor the instrument affordable and available?

Revenue usefulness – Can the revenues generated be applied to address the environmental objectives of the instrument and are they sufficient to create measurable improvement?

Ease of implementation and replication – Are the relative costs and benefits easy to assess, and are the legal requirements for introducing the new instrument reasonable?

Acceptance – Do the general public and the affected industries accept the instrument as a viable means of cost-effectively achieving environmental improvement without adversely affecting competitiveness, employment, income distribution and trade?

Distributional effects – Is there distributional disparity or inequity in the application or impact of the instrument, particularly regarding impacts on lower-income households, small businesses and disadvantaged parties?

Short-term results – Does the instrument have the potential to result in sufficient short-term improvement to motivate political administrators to undertake a commitment to the costs associated with the instrument during their political term?

Economic development enhancement – Does the instrument provide an environment that maintains trade competitiveness and encourages industrial development and employment generation?

Waste type applicability – Does the instrument address a wide range of waste types and have a significant impact on overall urban waste quantities, or does the instrument address only a limited number of unique and important waste types?

Source: Constructed from Inter-American Development Bank, 2003

Annexes

Annex I

Status of policies on regionalisation

BOX 16: Status of policies on regionalisation

Albania	National Waste Management Plan and Strategy will be drafted approximately at the end of 2010 after the Law on Waste Management has been adopted at the end of 2009 (under development). There is a development project for Korca region, supported by KfW in cooperation with SIDA and the Albanian Government, to construct a regional sanitary landfill in the city of Maliq to serve the Korca region. The institutional framework for the project is also under development. Another example is the landfill being constructed in Bushat, where the landfill management body and collection system have already been established.
Bosnia and Herzegovina	The 2003 National Environmental Action Plan (NEAP) proposes two options for an intermediate solution: regional landfills at 16 (entity option) or 14 (inter-entity option) locations, which would ultimately result in the long-term solution comprising six major regional landfills in Bosnia and Herzegovina, located in Banja Luka, Tuzla, Mostar, Bijeljina, Bihac and Livno. Since 2003, two sanitary regional depots have been built in Banja Luka and Sarajevo.
Croatia	Concept for 20 county waste management centres; concept for 11 regional waste management centres.
Kosovo (as defined under UNSCR 1244)	The National Waste Management Strategy, 2010-2020, is to be elaborated. One of the following two options is likely: (i) waste collection and transportation provided by regional companies owned by municipalities, and waste disposal services provided by a central company; or (ii) waste collection as well as waste disposal services provided by regional companies. There are currently seven regional waste collection service providers (public companies). Solid waste disposal is undertaken by the company KLMC, which is publicly owned and controlled by the central government, using five landfills and one transfer station; and two regional waste collection companies. The number and size of the regional waste companies mirrors the regions established for water and wastewater companies, without being based on the size of the population or similar criteria.
The former Yugoslav Republic of Macedonia	The National Solid Waste Management Strategy, as well as the National Waste Management Plan (2005) and the revised version of this document contain specifications for the establishment of a regional solid waste management system (a maximum of eight regions, corresponding to the country's statistical regions). Inter-municipal public enterprises will be established for the purposes of regionalising waste management in order to apply economies of scale and implement EU standards. Regional companies owning facilities that include landfills will be established, while individual communal enterprises will be responsible for fee collection and will pay the regional waste management centre a fee per tonne of landfilled waste.
Montenegro	According to the 2005 Master Plan, Montenegro is divided into eight waste collection areas. The future landfill network and transfer station are based on suggested groupings and estimated amounts of waste. Each area in which waste is collected will be using one inter-municipal landfill constructed according to the requirements of the EU Waste Landfill Directive.
Serbia	The National Waste Management Strategy was drawn up in 2003. Preliminary analyses showed that a rational network for the collection, transportation and disposal of solid waste should comprise 29 regional landfills and 44 transfer stations. Waste management regions will include three to nine municipalities with between 90,000 and 550,000 inhabitants. There are two ongoing regional projects in which several municipalities will use the same landfill: Duboko landfill serving Cacak, Uzice and seven minor towns; and Muntina Padina landfill serving four municipalities in the Pirot region. These two publicly owned regional landfills are expected to be commissioned by the end of 2009.

Annex 2

Regional waste management in the Turku region of Finland

Cooperative municipal waste management in Finland

Finland has a long tradition of strong municipal independence. Before the 1990s, municipal waste management was organised by independent municipalities. The country has approximately 400 municipalities, many of which are small with a population of around 1,000. This made it difficult for municipalities to invest in expensive waste management technologies. In the 1990s, the municipalities started to work together, the main driver for cooperation being the will to fulfil municipal waste management duties as efficiently and economically as possible. Improving the infrastructure has been crucial in order to develop better waste management.⁶ Inter-municipal companies comprise mainly non-profit companies. The boards of the companies/cooperatives are made up of politicians and a number of city engineers and city directors. The companies' targets are based on political decisions taken by the municipalities.⁷

Thirty-eight cooperative municipal areas have been established in Finland. Over 90 percent of the total population thus has access to waste management services. The cooperative municipal areas are organised under the Finnish Solid Waste Association (FSWA), which represents Finnish regional and municipal waste management companies and which connects the member companies, the Finnish authorities and the EU. The FSWA is a strong developer of waste management in Finland and guarantees a sound basis for the operations of member companies.⁸

Regional characteristics

The region of Turku is located on the coast of south west Finland. The region covers an area of 3,775 square kilometres, of which 3,050 square kilometres are covered by waste management services provided by the company Turun Seudun Jätehuolto Oy. The population in the region is approximately 317,000, including 150,000 households and 13,700 weekend houses. Ten percent of the population lives in rural areas. The total amount of waste produced is estimated at 275,440 tonnes per year.

Basic legal aspects of association

Turun Seudun Jätehuolto Oy (TSJ) was established in January 2004 by eight municipalities. The new company united the Turku Waste Management Authority, Southeast Coast Waste Management, and Parainen Waste Management Authority, which were previously the operating authorities in the region. Another 13 municipalities became shareholders in the company during 2005. In 2008, the ownership of TSJ was shared among 21 municipalities. A common waste management

TABLE 9: Ownership structure of TSJ

	POPULATION (2006)	PERCENTAGE OF SHARES
Askainen	942	0.20
Aura	3,748	0.77
Kaarina	22,207	13.45
Lemu	1,659	0.34
Lieto	15,414	4.04
Marttila	2,077	0.44
Masku	6,171	1.28
Merimasku	1,600	0.34
Mynamaki	8,031	1.75
Naantali	14,067	9.92
Nousiainen	4,632	0.94
Parainen	12,143	10.09
Piikkio	7,240	1.88
Poytya	6,229	1.35
Raisio	23,977	19.14
Rusko	3,818	0.81
Rymattyla	2,068	0.44
Tarvasjoki	1,950	0.44
Turku	175,390	31.95
Vahto	1,891	0.40
Velkua	247	0.03
Total	315,483	100

Source: TSJ Annual Report 2007⁹

policy, approved by the municipalities, and a waste management strategy are the two documents guiding the development of the company's waste management. The contract agreed between the owner municipalities and TSJ is valid until 2029.

Division of responsibilities among the different stakeholders

The responsibilities of TSJ include:

- Waste management
- Organisation

- Counselling regarding waste management
- Full-coverage service to industries and businesses.

Customers include citizens in the region, public institutions and waste companies. The waste management system in the Turku region is based on public and private cooperation in which TSJ has the overall responsibility. The municipalities have two functions regarding municipal waste management: an authority decision function and an operator-owner function. In most cases, the operation of waste collection and treatment plants has been transferred to the municipal companies/cooperatives. However, most of the practical operation of MSW management is outsourced.

In 11 municipalities, waste collection is managed by the municipality. In these municipalities, TSJ coordinates the services by tendering. In the remaining municipalities, waste collection is individually contracted.

Three waste management centres operate under the authority of TSJ: Isosuo, Rauhala and Topinojan. In Orikedon, the “receiving” of solid municipal waste is operated by TSJ while the Orikedon waste incineration plant is owned and operated by Turku municipality. Services for energy recovery are purchased by TSJ.

Financing of investment and operation costs and cost recovery

The turnover of the company was EUR 16.9 million in 2007. The turnover covered by the waste tax comprised 87 percent waste management fees and 13 percent collection fees and recovered biogas and metal. The waste management fee is EUR 94.50 per tonne.

Technology applied

- Energy recovery from incineration
- Heat recovery
- Recovery of biogas from disposal
- Composting of sewage silt

Challenges and obstacles

- New companies are emerging in the waste sector and TSJ is facing competition resulting in smaller amounts of received waste.
- A stagnating or decreasing amount of waste in the region. Future growth must therefore be based on the increased effectiveness of recycling and through higher environmental performance.

- Environmental permits have not been approved for a newly built incineration plant in Turku municipality.

Benefits of regional cooperation compared to previous state

- Increased effectiveness of waste management
- Increased economic capacity to invest in waste management infrastructure
- Increased energy, heat and biogas recovery

Notes

¹ EC Communication: *Taking sustainable use of resources forward: A Thematic Strategy on the prevention and recycling of waste* (2005).

² *Waste Management Policies in Central and Eastern European Countries: Current Policies and Trends, Final Report*. REC, 2001.

³ David Dole and Ian Bartlett, *Beyond Cost Recovery: Setting User Charges for Financial, Economic, and Social Goals*. ERD Technical Note No. 10 (2004).

⁴ For example, a generally accepted World Bank benchmark is often used, which suggests that charges for waste services to households in developing countries should not exceed 0.75% to 1.75% of average household income. (World Bank: *World Development Report 1998/1999*).

⁵ Source: *Economic Instruments for Solid Waste Management: Global Review and Applications for Latin America and the Caribbean*. Environment Network, Regional Policy Dialogue Study series, Inter-American Development Bank, Washington DC, 2003.

⁶ Ministry of the Environment, 2007b.

⁷ Association of Finnish Local and Regional Authorities/Finnish Solid Waste Association, 2007.

⁸ Finnish Solid Waste Association, www.jly.fi

⁹ <http://www.turunseudunjatehuolto.fi/file//9b5eed3c7d3acc1c5a929fc6a81274a2>

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