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## Preface

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This special publication emerged from an EU TACIS-ACE project dealing with instruments of economic risk reduction for hazardous waste management, evaluating the comparative aspects for countries in Western and Central Europe.

The term 'hazardous waste' (hw) means any waste or combination of wastes that poses an acute or potential hazard to human health or other organisms because such wastes are lethal, non-degradable in nature, may be biologically magnified, or otherwise cause or tend to cause detrimental effects. Categories of hw include those that are toxic, reactive, ignitable, or corrosive, or have biological effects.

Landfilling is still the predominant form of hw management in Europe. Various forms of policy instruments are applicable to achieve the goal of risk reduction, in a cost-effective way. The project set out to analyse the situation in four European countries, two being part of the EU, Germany and the UK, and the others, Hungary and Poland, striving for EU membership. For each country a case study is been presented.

In addition, within our policy framework, an assessment tool, a hazard ranking system, has been made available and applied. Each case study is subjected to the list of parameters identified and checked in a hazard ranking system policy scheme (consisting of direct regulation, market incentives and liability standards) in order to identify possibilities for economic risk reduction.

The most commonly heard concept for hw management is 'cradle-to-grave', a phrase that indicates responsibility for the identification, characterization, and classification of hw at the source, transportation from the source by an approved hw transportation system, and, finally, disposal of the hw based on its characteristics and site capabilities. The desired result of this management approach is the most expeditious and cost-effective disposal of the hw with minimized environmental impacts.

Our approach to 'economic risk reduction' supports this concept, which involves specific considerations for managing hw from cradle to grave. Initially, the hw must be classified according to the following criteria:

- Waste composition
- Waste characteristics with respect to human effects (e.g. toxicity, carcinogenic, irritant)
- Waste persistence and degree of stability, based on potential for biological and chemical reactions within landfills
- Leachability of the waste, and leachate characteristics
- Degree of attenuation of this leachate within the soil–water system
- Waste characteristics with respect to handling precautions (e.g. flammability, reactivity, explosiveness)

These criteria provide for in-depth analysis of hw to determine exactly what requirements should be implemented to ensure appropriate environmental disposal. If the waste investigated cannot be readily treated, then the most risk-conservative approach for handling the hw from cradle to grave is to direct all wastes to the most secure disposal facilities available.

It becomes apparent that there are several complex factors all bearing on a single point, creating a similarly complex problem for which a solution must be found. In the matter of hw treatment and disposal, the option of ignoring the problem does not exist; these wastes must be managed. A large fraction of the hw in Europe is produced by small to medium-size firms and industries.

These are specifically the firms that will be most directly and economically affected by hw regulations. The economic and technical resources available to the Central European countries, after the demise of Soviet communism, are currently at a level that makes illegal disposal attractive, and high-capital, high-maintenance, high-operating-cost treatment systems the direct opposite.

The final paper in this volume describes the impacts of a market-based approach to coping with hw. Though this approach may not be sensibly extended to the mainstream hw, it seems to make good economic sense for special types of hw.