

Guidance Manual on Environmentally Sound Management of Waste



**Guidance Manual for
the Implementation of the
OECD Recommendation C(2004)100
on
Environmentally Sound Management
(ESM) of Waste**



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FOREWORD

Following the adoption of Council Recommendation C(2004)100 in 2004 on Environmentally Sound Management of Waste, member countries wished to reinforce the implementation of this legal Act by issuing a practical Guidance Manual.

This publication aims at facilitating the implementation of an environmentally sound waste management policy by governments on one hand, and by waste treatment facilities on the other hand.

Every element of the Recommendation C(2004)100 is explained in detail, as well as the different core performance criteria which characterise environmentally sound management of waste, through various types of information (such as technical, financial, regulatory). Waste management practices applied in certain member countries are presented as examples.

The OECD Working Group on Waste Prevention and Recycling (WGWPR) has discussed this document and agreed to its publication.

The OECD Secretariat thanks the Advisory Group composed of the WGWPR delegates of Austria, Canada, Germany, the Netherlands, Spain, the United States and the European Commission, who provided useful guidance. This Guidance Manual was prepared by Soizick de Tilly, with invaluable feedback from Tom Jones, Henrik Harjula and Lucie Buxtorf, of the OECD Secretariat. Cilla Cerredo-Williamson helped with the technical support and editing.

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ACRONYMS

BAT	Best Available Techniques
BREF	BAT Reference Document (EU)
CEC	North American Commission for Environmental Cooperation
CPE	Core Performance Element
EC	European Community
EMAS	European Eco-Management and Audit Scheme
EMS	Environmental Management System
EPOC	Environment Policy Committee (OECD)
EPR	Extended Producer Responsibility
ESM	Environmentally Sound Management
EU	European Union
IPPC	Integrated Pollution Prevention and Control (EU)
ISO	International Organisation for Standardisation
NAICS	North American Industry Classification System
OECD	Organisation for Economic Cooperation and Development
POP	Persistent Organic Pollutants
SBC	Secretariat of the Basel Convention
SME	Small and Medium-sized Enterprise
UNEP	United Nations Environment Programme
GWPR	Working Group on Waste Prevention and Recycling (OECD)
GWMP	Working Group on Waste Management Policy (OECD)
WTO	World Trade Organisation

**GUIDANCE MANUAL FOR THE IMPLEMENTATION OF
COUNCIL RECOMMENDATION C(2004)100 ON
THE ENVIRONMENTALLY SOUND MANAGEMENT (ESM)
OF WASTE**

1. Background

On 9 June 2004, the OECD Council adopted a Recommendation on the Environmentally Sound Management of Waste (hereafter referred to as the “ESM Council Recommendation” or the “OECD Recommendation”) which was the outcome of 5 years of work, involving two OECD expert groups: the Working Group on Waste Management Policy (WGWMP) (until 2001), and the Working Group on Waste Prevention and Recycling (WGWPR) (as of 2001).

“Environmentally Sound Management (ESM) of Waste” had previously been referred to in most OECD Council Acts related to transboundary movements of wastes¹ and in other international², regional and/or national regulations, where it is one of the underlying principles of waste management policies. In these earlier OECD Acts, “environmentally sound management of waste” was considered to be a basic condition for allowing or prohibiting an export/import of waste within, as well as outside, the OECD area.

However, it was also recognised that the scope and level of ESM vary greatly from one Member country to another. Lack of a clear definition and common understanding of ESM has led to challenges for the practical implementation of ESM instruments. Less stringent environmental controls, safety levels or human health standards (usually implying the lower cost options) in some countries have also created the potential for exporters, importers or waste managers to direct shipments of wastes destined for recovery to OECD countries and/or waste management facilities having lower waste management standards.

¹ See C(83)180(Final), C(85)100, C(86)64(Final), C(90)178/FINAL, C(92)39/FINAL, C(2001)107/FINAL.

² See Articles 4.2(g) and 4.8 of the Basel Convention on the control of transboundary movements of hazardous wastes and their disposal; and EEC Council Regulation N°259/93 on the supervision and control of shipments of waste within, into, and out of, the European Community.

Guidance Manual on Environmentally Sound Management of Waste

For these reasons, Member countries decided in 1999 to begin working towards international ESM “guidelines” for waste recovery facilities. The broad objectives of that work have been:

- to provide facilities with common basic provisions for ESM in order to improve their environmental performance, if necessary;
- to achieve a more level playing field among facilities within the OECD area, in order to help ensure that facilities which have invested in environmentally sound technologies maintain their competitiveness, and
- to use the implementation of these “guidelines” as a way of helping countries to have greater confidence that their waste shipments within the OECD area were being sent to environmentally sound management facilities.

A series of workshops, aimed at defining the ESM concept as well as its scope and goals, were subsequently held: Cancun (1999), Vienna (2000) and Washington (2002). These discussions resulted in a common willingness of member countries not to simply issue “guidelines”, but also to apply the ESM principle through an OECD Council Recommendation. Recommendation C(2004)100 on the Environmentally Sound Management of Waste was eventually adopted (9 June 2004).

In parallel to this Council Recommendation, work has also been carried out elsewhere in the OECD on ESM, in particular by producing specific ESM guidance for one particular waste stream -- used and scrap personal computers³.

It is important to note that past OECD work on waste has addressed a variety of waste and materials management options by giving preference to activities such as waste reduction and reuse above those covered by the ESM Recommendation and this guidance manual.

One purpose of this Guidance Manual is to help government officers in the implementation of ESM, by providing guidance on the various components

³ See ENV/EPOC/WGWPR(2001)3/FINAL: “Technical Guidance for the Environmentally Sound Management of Specific Waste Streams: Used and Scrap Personal Computers”.

included in the OECD Recommendation. It also gives technical information and example approaches to implementation, while recognizing that individual Member countries will tailor the implementation of the ESM Recommendation to their national circumstances. The end objective is to facilitate implementation and to promote common understanding on key issues by Member countries.

Another purpose of the Guidance Manual is to help individual waste management facilities to continuously improve their environmental performance thanks to the implementation of “Core Performance Elements” (CPEs). It provides practical guidance on the implementation of these CPEs through examples of existing practices and the use of instruments or policies in relation to specific elements of ESM. These examples are provided here as useful approaches for countries/facilities in their implementation of the OECD Recommendation, but they are by no means intended to be prescriptive.

2. The OECD working definition of ESM

Because ESM is such a broad and complex concept, no formal agreement has yet been reached on an official definition of this term within the OECD. The following “working definition” was, however, used in the initial stages of ESM work in the OECD⁴:

“a scheme for ensuring that wastes and used and scrap materials are managed in a manner that will save natural resources, and protect human health and the environment against adverse effects that may result from such wastes and materials”.

This “working definition” was similar to the definition used in another international context (i.e. under the Basel Convention), where ESM means “taking all practicable steps to ensure that hazardous wastes or other wastes are managed in a manner that will protect human health and the environment against the adverse effects which may result from such wastes”. However, it should be noted that the Basel definition covers hazardous wastes and “other wastes” (i.e. the two Annex II categories of “wastes requiring special

⁴ See ENV/EPOC/WGWPR(2001)4/REV3: Core Performance Elements of the Guidelines for Environmentally Sound management of Wastes (February 2003).

consideration”⁵), whereas the above OECD definition covered *all* waste, except radioactive waste.

It is also important to note that the OECD Council Recommendation does not explicitly address “used materials” in its scope. Functionally, therefore, the working OECD definition of ESM as embodied in the 2004 Council Recommendation is as follows:

a “scheme for ensuring that wastes and scrap materials are managed in a manner that will save natural resources, and protect human health and the environment against adverse effects that may result from such wastes and materials”.

3. Purpose of the OECD Recommendation on ESM [C(2004)100]

The overall purpose of the Council Recommendation envisages enhanced environmentally sound management of waste throughout the OECD area. The Council Recommendation also states three specific objectives:

- 1. “sustainable use of natural resources, minimisation of waste and protection of human health and the environment from adverse effects that may result from waste;*
- 2. fair competition between enterprises throughout the OECD area through the implementation of ‘core performance elements’ (CPEs) by waste management facilities, thus contributing to a level playing field of high environmental standards;*
- 3. through incentives and measures, diversion of waste streams to the extent possible from facilities operating with low standards to facilities that manage waste in an environmentally sound and economically efficient manner;”*

Structurally, the Council Recommendation envisages implementation by governments of general policy “principles” (the “recommendations part” of the Council Recommendation), combined with six types of measures to be

⁵ Y46 (wastes collected from households); and Y47 (residues arising from the incineration of household wastes).

implemented at the facility level (the “Core Performance Elements” part of the Council Recommendation).

Because it has been recognised that the efforts needed to implement ESM may vary significantly from country to country, from site to site, and from waste type to waste type, the non-legally binding approach was preferred to the mandatory approach. Member countries therefore adopted a “Recommendation”, which is not legally binding, rather than a “Decision”, which is. Flexibility is needed because countries, as well as facilities, face different geographical, social, economical and industrial situations⁶. Countries are also at different stages of implementing ESM. Furthermore, certain ESM provisions cannot be applied in some countries, given their existing legislative frameworks.

Thus, a non-legally binding approach was considered most appropriate, partly to give encouragement to countries that do not yet have ESM policies in place (to help them to take action) and partly to provide additional support for countries who have already begun implementing their ESM policies – while taking into account the specific circumstances facing both groups. In adopting this Recommendation, member countries also agreed to implement, to the extent practicable, the basic ESM principles, and to encourage waste management facilities operating in their jurisdictions to apply the six Core Performance Elements.

Countries have wide latitude with regard to the means/instruments used to meet these commitments. Consistent with this non-binding approach, the word “should” as used in this Guidance Manual is intended only to “recommend”, and does not connote a “requirement”.

4. Follow-up by the OECD on the Implementation of the ESM Recommendation

In addition to the production of the Guidance Manual for the implementation of the ESM Recommendation, a review on the way, and extent to which, countries have implemented the ESM Recommendation will take place three years after its adoption (i.e. in 2007). At that time, Member

⁶ In particular, “the size of enterprise, especially the situation of SMEs, the type and amount of waste, the nature of the operation and domestic legislation” are explicitly taken into account by the Council Recommendation.

countries will be asked to provide information related to their respective implementation of the ESM Recommendation. The received information will then be synthesised and presented in a report which will be submitted to the OECD Council for information. This is normal practice for all OECD Council Recommendations. It helps both Member countries and the OECD Council to better understand if a given Council Recommendation (on which all OECD Countries have agreed) has brought about the desired changes, and if the Recommendation needs to be reviewed, on the basis of lessons learned.

5. Scope of the ESM Recommendation

The scope of the ESM Recommendation (i.e. what it applies to) is quite broad. In practice, in some cases it can be difficult to draw a distinction between the characteristics of the different wastes (hazardous or non-hazardous), the different types of waste treatment or activities (disposal or recovery), and the different origins of wastes (whether domestically generated or imported), etc. Therefore, a broader scope for ESM, covering all wastes (except radioactive waste) and all waste management activities, has been adopted in the OECD Council Recommendation. On the one hand, this helps to ensure that all relevant actors are subject to the same recommendations. On the other, it facilitates implementation of the OECD Council Recommendation, by removing potential ambiguities as to whether a particular waste or a particular facility should be subject to the Recommendation or not.

Throughout the negotiation of the Recommendation, it was also agreed that narrowing the scope of the OECD ESM Recommendation could lead to it being no more stringent than other existing approaches to ESM, and would therefore not add much of value to those existing approaches. For example, OECD member countries that are also part of the European Union are currently subject to most of the elements of the OECD ESM Recommendation via their involvement with several EC Directives or Regulations. For this reason, OECD countries chose to adopt an approach to ESM in the OECD Recommendation that had a somewhat wider scope than that applied in existing approaches.

5.1 What does the ESM Recommendation cover in terms of geographical area?

The ESM Recommendation applies to the management of wastes that are generated, exported or imported within the OECD area only. Shipments of waste by OECD countries to non-OECD countries are addressed either by the

Basel Convention, the EC Waste Shipments Regulation N° 1013/2006, bilateral and regional agreements, and/or national regulations.

5.2 *What types of materials are concerned by ESM?*

The materials that fall under the ESM Recommendation are those defined as “waste” in the OECD context (i.e. all materials, substances and objects destined for the disposal or recovery operations as listed in OECD Decision C(2001)107/FINAL⁷). The reason for applying ESM to “waste in general” is that waste is a potential risk to the environment and human health, if mismanaged. Such risks need to be controlled, and measures need to be taken, in order to prevent (or to limit) impacts on environment and health resulting from waste management activities.

All waste except radioactive waste is therefore covered by the ESM Recommendation, whether it is hazardous or non-hazardous. The main reason is that testing procedures for determining whether a particular waste is hazardous or not vary from one country to another, resulting in differences in waste classification. Therefore, applying ESM to “waste in general” (i.e. independent of its potential hazardousness) ensures that all wastes (other than radioactive wastes), and including those which are difficult to characterize, are subject to the ESM Recommendation.

There are other reasons to widen the scope from hazardous wastes to non-hazardous wastes, such as:

- There are wastes that, even if considered non-hazardous in many countries, still pose a risk for the environment when not managed in an appropriate manner. That is the case, for example, of used tyres, qualified as “problematic wastes” in Switzerland, which may cause real danger (fire) when not stored appropriately.
- Composite wastes, usually involving end-of-life products (such as household appliances or electronic wastes), also call for environmentally sound management because, even if they contain small quantities of hazardous components, they are

⁷ For more details, see Appendices 5.A (Disposal Operations) and 5.B (Recovery Operations) of Decision C(2001)107/FINAL on the Control of Transboundary Movements of Wastes Destined for Recovery Operations.

generated in large volumes. Those wastes often require dismantling operations which render their recycling costly and may lead to the use of less environmentally sound and less expensive waste disposal practices.

- There are other types of wastes that lead to management problems, such as wastes generated in large quantities and in widely scattered sources (e.g. construction and demolition wastes, plastics, paper and cardboard), or hazardous wastes generated in small quantities yet in widely scattered sources (e.g. small consumer rechargeable and non-rechargeable batteries).
- In some cases, hazardous wastes are exempted under national regulations from the usual controls applied to hazardous wastes, in order to promote their recycling. In those particular cases, requirements for environmentally sound management may prove to be a useful safeguard.
- Finally, it is important that any waste deemed “non-hazardous” be treated in a way that does not harm human health and the environment. Any waste management facility, whatever the type of waste it handles, should manage its wastes in an appropriate and environmentally sound manner.

In some countries, materials destined for recovery operations may not be considered “waste”. Whether they are called “wastes”, “recyclable materials”, or “scrap materials”, they are covered by this ESM Recommendation. This is confirmed by the footnote attached to the title of the Recommendation and relating to the waste definition, which specifies that waste management facilities “include recovery facilities”, i.e. facilities which carry out “recovery”, whatever the status of the material may be.

Although the need to develop more specific ESM policies originated from policies designed for controlling transboundary movements of wastes, it was recognised that the ESM Recommendation should also be applicable to domestic waste management facilities in OECD member countries. Indeed, when managing waste, facilities do not differentiate wastes according to their country of origin or place of generation -- but according to their physical and chemical properties. It is therefore appropriate to apply the same level of rigour to the management of all wastes, regardless of their origin, if they have similar

physical and chemical characteristics. Therefore, wastes originating from imports, as well as wastes that are domestically generated, should be managed in an environmentally sound manner.

5.3 *What types of activities fall under ESM?*

The OECD Council Recommendation agreed that ESM should cover the following activities, under the term “waste management”: disposal, (which includes both permanent and temporary storage⁸) and recovery of wastes⁹, including subsequent disposal of residues from recovery operations -- i.e. all activities in relation to waste which have the potential to harm the environment and human health, if not properly managed. This means, for example, that a landfill site as well as a municipal waste incinerator, or a recycling plant, are covered by the Council Recommendation. Generalising the ESM concept to all waste management activities helps to ensure that waste management options with higher environmental standards can remain competitive.

In addition, many waste management facilities carry out different activities on the same site. For example, incineration plants may recover energy and dispose of the residues from incineration. It is both logical and practical that all waste management activities be subjected to the same expectations of environmental quality within the same facility.

Waste collection is considered an integral part of waste management. Collection is a key step towards appropriate recovery or disposal. The success of environmentally sound management of waste depends in many cases on the way the collection is organised. For example, waste oils must be stored in separate tanks and trucks collecting oils must be equipped with separate tanks according to the type and quality of oils, if they are intended for recycling. If the oils are mixed, the quality is impacted and the oils may need to be sent directly for destruction (instead of recycling).

⁸ Note that “disposal” covers 15 different operations listed in Appendix 5.A of OECD Decision C(2001)107/FINAL), among which are permanent storage (D12) and temporary storage (D15)

⁹ Note that “recovery” covers 13 different operations listed in Appendix 5.B of OECD Decision C(2001)107/FINAL, among which is temporary storage (R13).

On the other hand, waste transport is not covered by the ESM Recommendation, since there are already domestic and international transport regulations which ensure that hazardous or risky materials are transported under safe conditions. Most international instruments of this type have been issued by the UN.

5.4 *What organisations or enterprises are covered by ESM?*

All organisations performing the above-mentioned waste management activities within the OECD on a commercial or public service basis are covered by the Recommendation on ESM. These may be private business enterprises (whether large, medium or small), as well as public authorities, such as municipalities, when they organise and carry out waste collection and management themselves.

Because most waste management activities, especially recycling, are performed by small and medium-sized enterprises (SMEs), it is necessary to ensure that implementation of the ESM Recommendation is also applicable to (and achievable by) SMEs. SMEs usually face particular resource constraints, both human and financial, which may make difficult the implementation of certain provisions of the OECD Recommendation. For these reasons, special provisions for SMEs have been embodied in that Recommendation.

The term “SME” is not uniformly defined across the OECD, due to the use of different criteria and thresholds by Member countries. In order to facilitate the application of the Recommendation and also because it cannot go beyond national laws and regulations, it was agreed, in the context of the OECD ESM Recommendation, to refer only to “small and medium-sized enterprises” in general terms.

This approach lets each country use its own definition of SME, reflecting its own industrial structure. Differences in these definitions may imply important differences in the number of SMEs within individual countries. While the proportion of SMEs compared to the total number of enterprises within a country is probably comparable across OECD countries, it is important to recognise that not all member countries have a national definition for SME and not all national definitions for SME are equivalent. Appendix IV (below) provides an overview of definitions and characteristics of SMEs in Europe and North-America.

Issues related to SMEs are also dealt with in more detail when elaborating on the first Core Performance Element (see Section 8 below).

6. Approaches to ESM in other International or Intergovernmental Organisations

At present, two international organisations, in addition to the OECD, have developed a specific work programme to enhance ESM: the United Nations Environment Programme (UNEP), through the Basel Convention, and the North American Commission for Environment Cooperation (CEC)¹⁰. Both organisations, as well as the OECD, have been dealing with waste exports and imports and facing the issue of directing wastes to appropriate facilities and the goal of improving hazardous waste management.

6.1 *The Basel Convention and ESM*

Managing hazardous or other wastes in an environmentally sound manner is a fundamental obligation of Parties to the Basel Convention. Work is being carried out in that context to help Parties, in particular developing countries, to apply ESM principles. A number of technical guidelines developed within the Basel Convention, and listed in Annex III of the OECD Recommendation, have been developed for specific waste streams, such as used tyres, plastic waste, lead-acid batteries, ships, biomedical and healthcare waste¹¹. In the context of a partnership on mobile phones, guidelines on the environmentally sound management of end-of-life mobile phones are under development. Such guidelines are particularly useful for developing countries insofar as the elaboration of their waste management infrastructure may still be at an early stage and they may not yet possess environmental know-how and technologies required to ensure ESM. In this way, developing countries can benefit from the experience of developed countries.

At the 5th Conference of the Parties of the Basel Convention in December 1999, the Parties adopted “the Basel Declaration on environmentally sound

¹⁰ The CEC is an international organisation created by Canada, Mexico and the United States under the North American Agreement on Environmental Cooperation. The CEC was established to address regional environmental concerns, to help prevent potential trade and environmental conflicts, and to promote the effective enforcement of environmental law.

¹¹ For a full list of the Basel technical guidelines, refer to: <http://www.basel.int/techmatters/techguid/frsetmain.php>.

management”, which calls for moving from the concept of ESM to its implementation. The concept, described in more detail in the “Framework Document” (Basel Convention Secretariat, 1994), encompasses the objectives of preventing, minimising, recovering and disposing of wastes in an environmentally sound manner, while taking into account social, technological and economic constraints. To achieve these ESM objectives, a number of tools and actions are recommended, such as the use of cleaner technologies, the reduction of transboundary movements of waste, the prevention and control of illegal traffic, the promotion of institutional and technical capacity-building, the transfer of environmentally sound technologies to developing countries, the development of training and information exchange, etc.

In addition, the following criteria have been recommended for Basel Parties to assess environmentally sound management:

- there exists a regulatory and enforcement infrastructure that ensures compliance with applicable regulations;
- the facilities are authorised and possess the adequate technology for treating hazardous waste and controlling pollution;
- the effects from waste treatment activities are monitored by facility operators;
- appropriate action is taken in case of unacceptable emissions arising from the waste management;
- employees of waste facilities are adequately trained.

As can be seen, these criteria developed within the Basel Convention framework are similar in approach to the CPEs contained in the OECD Council Recommendation.

6.2 *The CEC and ESM*

In June 2001, the CEC Council created the Hazardous Waste Task Force (HWTF), with the following mandate: to promote an environmentally sound management of hazardous waste and hazardous recyclable materials¹² and

¹² Whether they are called “wastes” or “recyclable materials”, they are covered by the CEC ESM approach.

tracking of their transboundary movements. The CEC Council instructed its Secretariat to work with the Parties to:

- “1. Identify priority hazardous waste streams of mutual concern on which the Parties can work to strengthen ESM practices regarding their transboundary movement and disposal.
2. Identify priority hazardous recyclable materials and wastes of mutual concern on which the Parties can work to strengthen ESM practices regarding their transboundary movement and recovery/recycling.
3. Identify specific capacity building needs in Mexico for both ESM of recycling and disposal, and tracking of hazardous wastes, and
4. Hold a public meeting with the CEC Joint Public Advisory Committee on ESM and tracking of hazardous waste to provide an opportunity for participation by interested stakeholders.”

As can be seen from the above instructions, the scope of the ESM approach within the CEC is narrower than the OECD approach, since non-hazardous wastes are not covered in the CEC context. However, the same methodology is applied (i.e. to develop guidelines for a waste stream of specific concern, due to its importance and nature).

6.3 The EU and ESM

ESM has also been addressed by the European Union, although somewhat differently compared to the Basel Convention and the CEC approaches. The EU has not carried out, to date, specific work on ESM but has indirectly addressed it through many EC Directives and Regulations related to waste and environmental protection, where managing waste in an environmentally sound manner is an underlying principle. Thus, a set of EC Directives and Regulations (hence, legally-binding in nature) contributes to the implementation of the ESM principle¹³.

The general principle of ESM already underlies the Waste Framework Directive (1975) and the Hazardous Waste Directive (1991), both of which include environmental protection principles, the waste hierarchy, permitting and

¹³ <http://europa.eu.int/comm/environment/waste/legislation/index.htm>

inspection requirements, etc. The forthcoming revision of the Waste Framework Directive also addresses ESM through the application of standards for permits¹⁴.

Of special interest with regard to ESM is the “IPPC Directive” on Integrated Pollution Prevention and Control (1996), which addresses industrial installations with a high pollution potential, including many waste management installations. Such installations may only be operated if the operator holds a permit containing requirements for the protection of air, water and soil, waste minimisation, accident prevention, and (if necessary) site clean-up. These requirements must be based on the principle of the use of best available techniques (BAT), which is further detailed in Appendix III (below). One key element here is that permits are granted to installations on the basis of BAT.

In addition to the above framework legislation, other EU Directives and Regulations (described in more detail in Appendix II) also contribute to the environmentally sound management of waste treatment operations, as the Landfill Directive (1999/31/EC) and the Waste Incineration Directive (2000/76/EC) or of specific waste streams, as the Directives on Waste Oils (75/439/EEC as amended), Sewage Sludge (86/278/EEC as amended), Batteries and Accumulators (2006/66/EC), Packaging (94/62/EC as amended), End-of-life Vehicles (2000/53/EC) and Waste Electric and Electronic Equipment (2002/96/EC and 2002/95/EC).

Finally, the Parliament and Council Regulation N° 1013/2006 on the Shipments of Waste which applies from 12 July 2007, directly addresses environmentally sound management of waste. Article 49 of this Regulation stipulates that, in the case of exports of waste from the Community for disposal or recovery, the competent authority of dispatch shall require and endeavour to secure that any waste exported is managed in an environmentally sound manner throughout the period of shipment, including recovery or disposal in the third country of destination. The Regulation also stipulates that the competent authority of dispatch in the Community shall prohibit an export of waste to third countries, if it has reason to believe that the waste will not be managed in an environmentally sound manner.

Clearly, the EU legislation on environmental protection and waste management considers ESM an underlying principle of its policy. Many of the

¹⁴ See COM(2005)667 (Final): Proposal for a Directive of the European Parliament and of the Council on Waste.

ESM requirements operating in the EU Member States are also very similar to the CPEs of the OECD Recommendation on ESM.

7. Recommendations to Governments

This section of the Guidance Manual provides additional perspective on the “*recommendations*” part of the ESM Council Recommendation.

“THE COUNCIL...

RECOMMENDS that Member countries elaborate and implement policies and/or programmes to ensure that waste be managed in an environmentally sound and economically efficient manner. Domestic policies and/or programmes implemented under this Recommendation shall not lead to or create unnecessary obstacles to international trade of waste destined for recovery operations.

For the purpose of this Recommendation, taking into account the size of the enterprise, especially the situation of small and medium size enterprises (SMEs), the type and amount of waste, the nature of the operation and their domestic legislation, Member countries should:...

The first paragraph of this “chapeau” sets out the basic objective of the ESM Council Recommendation. It also draws attention to the possible counterproductive effect of favouring a wider scope for the ESM Recommendation by encompassing non-hazardous waste and recyclable materials with economic utility. Stringent regulatory and administrative requirements stemming from the ESM Recommendation, applied to producers of valuable recovered materials (but not to their competitors who use primary resources) will distort markets and impede the achievement of sustainable development. Such requirements, applied to low-risk recyclable wastes/materials, which may have low value and for which markets may often be inefficient, could discourage recycling and trade of recyclables, by making such activities more complicated and costly, compared to other waste management options. Broadly, implementation of ESM policies “*shall not*”, as states the Recommendation, create unnecessary regulatory, administrative, financial or other barriers either to recycling or to trade of recyclables. Excessively restrictive approaches to ESM might also be considered

unnecessary obstacles to international trade¹⁵, and could raise concerns under WTO rules.

The second paragraph of this “chapeau” also recognises that considerable flexibility will be necessary in implementing this Recommendation. Several factors may influence the ease with which individual countries might implement either the recommendations to governments or the Core Performance Elements, from the logistical, legal, and financial points of view. These include geographical factors (climate, geology, degree of urbanisation, population density, etc.); industrial structure (number and size of enterprises); the financial situation of enterprises; characteristics of the wastes (more or less hazardous); the type of operation (collection, disposal, recycling); national versus sub-national legislation (in some countries, hazardous waste is regulated at national or federal level, but non-hazardous waste is regulated at the local level¹⁶). Another factor influencing the ease with which governments might encourage implementation at the facility level includes the economic utility of the resources and products involved. Implementation for an enterprise that produces commodities from recovered materials will require government attention to market incentives and constraints, as well as existing application of environmental regulations of similar industrial production.

¹⁵ See, e.g., Article 2.2 of the WTO Agreement on Technical Barriers to Trade: “Members shall ensure that technical regulations are not prepared, adopted or applied with a view to or with the effect of creating unnecessary obstacles to international trade. For this purpose, technical regulations shall not be more trade-restrictive than necessary to fulfill a legitimate objective, taking account of the risks non-fulfillment would create. Such legitimate objectives are, *inter alia*: national security requirements; the prevention of deceptive practices; protection of human health or safety, animal or plant life or health, or the environment...”

¹⁶ In the US, for example, the recovery and disposal of non-hazardous wastes are regulated at the State level.

Recommendation 1

“Member countries should ... have an adequate regulatory and enforcement infrastructure at an appropriate governmental level, consisting of legal requirements such as authorisations/licences/permits, or standards;”

This text recommends the maintenance, revision, or establishment of: 1) a legal framework; and 2) related enforcement mechanisms. The domestic legal framework could consist of environmental instruments, such as emission limit values, environmental performance standards, technology standards or other regulations applicable to waste management activities. The enforcement mechanisms could consist of the verification, by government officers or appropriate bodies, of compliance with legal instruments and standards. In some instances, issuing authorisations/licences or permits may be appropriate. In addition, several government levels (whether national/federal or sub-national) may be involved in the development and/or implementation processes, in which case, good co-ordination would be important to ensure effective enforcement.

Recommendation 2

“Member countries should ... develop and implement practices and instruments that facilitate the efforts of competent authorities to monitor the implementation of the CPEs listed in Annex I to this Recommendation and control compliance of waste management activities with applicable national and international rules and regulations. In case of non-compliance with existing rules, prompt, adequate and effective actions should be undertaken;”

In the same spirit as for *recommendation 1* (i.e. for effective implementation), it is also important that the task of competent authorities be made as practical as possible when verifying the compliance of waste management activities with the applicable legal framework. These authorities would benefit from having simple means or procedures at their disposal, such as registers of licensed facilities and recognised inspectors/auditors, in order to quickly and easily control the compliance of waste management facilities with national and international regulations, and to monitor the implementation of the CPEs. Numerous, overlapping and complex procedures are likely to result in enforcement and other implementation difficulties. In addition to simple control

means or procedures, authorities should also be able to effectively enforce regulations in place (e.g. the application of sanctions in the case of non-compliance with the legal framework). It is the responsibility of member countries to decide on the appropriate sanctions, but consideration should generally be given to adopting approaches that are quick, dissuasive and well-targeted, in order to enhance their effectiveness.

Recommendation 3

“Member countries should ... ensure that waste management facilities are operating according to best available techniques* while taking into consideration the technical, operational and economic feasibility of doing so, and work towards continually improving environmental performance;”

(*Use of best available techniques implies the use of technology, processes, equipment and operations that are based on scientific knowledge, whose functional value has been successfully tested in operative comparable plants”).

The use of “Best Available Techniques” (BAT) (also called “State-of-the-Art Technology” in some countries, while other countries associate no specific level of technology to this term) is considered as a useful tool for ensuring that waste is managed in an environmentally sound manner within a particular waste management facility. The use of BAT is a policy approach that a number of OECD countries are already using through national or international regulations, mainly because it is recognised as bringing about many environmental benefits simultaneously in various areas (emissions of air and water pollutants, energy consumption, waste generation, etc.), while still reflecting economic viability.

BAT can be briefly described as the use of the most efficient and proven technologies and methods of operation to prevent and minimise harmful impacts on the environment at reasonable costs. Alternatively, BAT may be viewed as improving environmental performance through a variety of initiatives involving the selection or promotion of techniques, incentives, innovation, operating practices, programmes, or performance standards without necessarily prescribing specific technologies. The use of BAT is also intended to be a dynamic tool. It evolves at the same time as technology and methods of operation are making progress, so it implies regular updating of information related to “cutting edge” waste technologies and techniques. This contributes to

continuous improvement of environmental performance of waste management facilities. It is important to note, however, that the use of “cutting-edge technology” may not be the most appropriate technique in certain waste management circumstances. For example, for the management of certain wastes, such as obsolete equipment, it may be that manual dismantling may yield higher reuse and recycling value of the materials, as opposed to use of high-end technology.

The examples provided below show how the BAT concept has been put into practice by some OECD countries (in this case, the EU countries, the United States and the Parties to the Stockholm Convention on Persistent Organic Pollutants). These examples may be useful in demonstrating the potential range of approaches toward implementing *recommendation 3* across OECD countries.

The EU approach to BAT has been developed in the framework of the Integrated Pollution Prevention and Control (IPPC) policy in 1996¹⁷. The EC Directive on IPPC aims at preventing and controlling pollution (i.e., waste and emissions to air, water, and land) arising from installations with capacities above defined thresholds¹⁸) and for 33 identified industrial sectors, including part of the waste sector. To achieve this goal, industrial installations have to apply, *inter alia*, a certain number of general principles, the first of which is the application of “best available techniques”. Within the EU, BAT is a legal or regulatory requirement which is used as a criterion by public authorities to grant licences or permits to industrial installations.

The EU approach to BAT forms the basis for the setting of emission limit values and the operating conditions included in the permitting procedure for installations. It is defined as:

“the most effective and advanced stage in the development of activities and their methods of operation which indicate the practical suitability of

¹⁷ See Directive 96/61/EC (24 September 1996), concerning Integrated Pollution Prevention and Control, as amended by Directives 2003/35/EC (26 May 2003) and 2003/87/EC (13 October 2003), and Regulation (EC) n° 1882/2003 (29 September 2003).

¹⁸ See Annex I of Directive 96/61/EC (24 September 1996), concerning Integrated Pollution Prevention and Control: “Categories of Industrial Activities Referred to in Article 1”.

particular techniques for providing in principle the basis for emission limit values designed to prevent, and where that is not practicable, generally to reduce emissions and the impact on the environment as a whole:

- ‘techniques’ shall include both the technology used and the way in which the installation is designed, built, maintained, operated and decommissioned,
- ‘available’ techniques shall mean those developed on a scale which allows implementation in the relevant industrial sector, under economically and technically viable conditions, taking into consideration the costs and advantages, whether or not the techniques are used or produced inside the Member State in question, as long as they are reasonably accessible to the operator,
- ‘best’ shall mean most effective in achieving a high general level of protection of the environment as a whole.”

To help in determining the Best Available Techniques, the EC Directive uses the following twelve criteria. Many of these criteria are compatible with the goals of waste prevention and minimisation, which the OECD has long supported, and with the CPEs of the OECD ESM Recommendation:

1. “the use of low-waste technology;
2. the use of less hazardous substances;
3. the furthering of recovery and recycling of substances generated and used in the process and of waste, where appropriate;
4. comparable processes, facilities or methods of operation which have been tried with success on an industrial scale;
5. technological advances and changes in scientific knowledge and understanding;
6. the nature, effects and volume of the emissions concerned;
7. the commissioning dates for new or existing installations;
8. the length of time needed to introduce the best available technique;

9. the consumption and nature of raw materials (including water) used in the process and their energy efficiency;
10. the need to prevent or reduce to a minimum the overall impact of the emissions on the environment and the risks to it;
11. the need to prevent accidents and to minimise the consequences for the environment;
12. the information published by the Commission pursuant to Article 16(2)¹⁹ or by international organisations.”

As mentioned in the twelfth criterion above, the European Commission is publishing information on its approach to BAT. This includes technical guidance developed for the use of BAT by the industrial sectors identified in the Directive. This is provided in the form of “BAT reference documents” (BREFs), which must be taken into account by competent authorities in EU Member States who are issuing permits. With regard to the waste sector, two BREFs were finalised in 2006: the first covers incineration, the second covers waste treatment industries (mainly recovery of hazardous wastes and pre-treatment for disposal). Detailed information on the latter is provided in Appendix III below. In addition, BREFs covering specific industrial sectors contain information on relevant aspects of waste treatment (e.g. non-ferrous metals processes, slaughterhouses and animal by-products, management of tailings and waste-rock in mining activities²⁰).

In the United States, approaches to BAT (i.e., selection of the appropriate technologies and/or operating practices) are defined not only by regulation at the federal, state and local levels, but also by government-sponsored voluntary initiatives, and even by industry itself. There is great variation among these approaches, as they are tailored according to a multitude of factors, such as policy choices made by governments at the federal, state and local levels as well as industry, risks and site-specific environmental considerations, geography, value of materials or wastes, as well as effectiveness and cost of the various BAT options. In the US, BAT is defined and implemented at many levels and by many government and industry entities and these entities are motivated to do

¹⁹ Article 16(2) of the IPPC Directive requires that EU Member States and industries exchange information every 3 years on best available techniques and their developments. This information is then published by the Commission as BAT Reference documents (BREFs).

²⁰ <http://eippcb.jrc.es/pages/FActivities.htm>

so by many factors. Market-based factors and government regulation are two of the largest determinants of how BAT is ultimately implemented by industry.

US environmental and safety laws and regulations at each level of government reflect policy choices made by those entities. In the US, both the federal and state governments are involved in regulating hazardous wastes and occupational safety and health, whereas the state and local governments control management of non-hazardous waste. Some regulatory programmes specify technologies or levels of technology to be used by industry, and some are more flexible, performance-based, standards. At the federal level, environmental and occupational safety and health regulations often use performance-based standards to identify the level of protection of human health and the environment that is necessary, but leaving flexibility for industry to determine the approaches or techniques that will be used to attain that level of protection. Regulations among the 50 states utilize both technology-specific and performance-based requirements. Governments at every level also implement a large array of voluntary programmes, some specifying best management practices. Many voluntary programmes, including government-industry partnership programmes, employ a variety of incentives to encourage use of best industry techniques.

In its approach to BAT, the US promotes many voluntary and partnership programmes, such as the Performance Track programme which concerns environmental management systems, the Waste Wise programme for reduction of waste generation at organizations and businesses, and the Plug-In To e-Cycling programme for the collection and sound management of electronics waste. Many industry sectors have developed best management practices that are tailored to their industry including certification and other incentive programmes for encouraging implementation of best industry techniques. This multi-layered approach, and the initiatives and programmes that emanate from it, result in a continual "raising of the bar" for BAT in the US.

In the context of another international organisation (UNEP), the BAT concept (based on a similar definition and the same criteria as those of the IPPC Directive), together with the BEP concept (Best Environmental Practices), is used in the **Stockholm Convention on Persistent Organic Pollutants**. An expert Group on BAT/BEP was created and developed guidelines by source categories on how to minimise and eliminate unintentionally produced POPs by using BAT and BEP. Among other emission sources, it addresses emissions from waste management installations, such as waste incinerators, secondary metal production, or waste oil refineries. These guidelines are based on the

BREFs developed by the European Commission. However, while the EU approach applies to industrial installations with capacities above defined thresholds, the UNEP approach applies to any installation.

It should be noted that, consistent with the implementation of other aspects of the OECD Recommendation, flexibility is appropriate when implementing BAT. Some reasons for differing approaches to BAT include the following:

- ✓ the use of BAT may not be part of national regulation;
- ✓ the use of BAT is interpreted differently across countries;
- ✓ the implementation of a particular approach to BAT depends on national regulations; on the technical characteristics and financial potential of the facility involved; and on local environmental conditions. If applied stringently, implementation of a particular approach to BAT could stifle innovation and compel all technology improvements to be developed by national research institutes.
- ✓ In the specific circumstances of recovery operations, where products recovered from waste must compete in open markets on quality and economic considerations with products produced from non-waste source materials, BAT may be non-competitive (if it causes recovered materials to cost more than identical products derived from virgin sources) and counter-productive to ESM (if attempts at recovery are abandoned, due to high costs or inefficient procedures).

The chapeau of the “recommendations” part of the ESM Recommendation is particularly relevant in the context of BAT: the size of the enterprise, the situation of small and medium size enterprises (SMEs), the type and amount of waste and the nature of the operation, the typical useful length of life of a technology already applied by an existing facility meeting all relevant regulatory standards, and (in the case of recovery operations) the nature of, and markets for, the products of that recovery, are all elements to be taken into account by government officers when waste management facilities apply BAT.

Recommendation 4

“Member countries should ... encourage, through appropriate measures, information exchange between producers, waste generators, waste managers and authorities, including participation in sectoral trade or industry association activities addressing these issues, in order to foster waste prevention, optimise recovery operations and minimise quantities as well as potential risk of waste destined for disposal or recovery;”

Under this recommendation, all stakeholders should share relevant information, in order to take into account environmentally sound management of waste throughout a material's life-cycle. Increased information exchange that is undertaken effectively may lead to greater opportunities for waste prevention, materials recovery, and/or risk reduction – all without compromising sensitive business information. If waste managers make producers aware of the difficulties they are facing when recycling end-of-life products, the producers will be in a better position to design products that can be more easily recycled in an environmentally sound manner and may thus increase the recovery of wastes. For example, products could contain fewer types of materials, less harmful substances, and generate fewer residues from the recycling operation. This co-operation between producers and waste managers is in line with Extended Producer Responsibility policies implemented by many member countries, and will potentially benefit both groups. It is also consistent with the approach to sustainable materials management, which is currently under development by OECD member countries.

Public authorities can also benefit from being involved in the information exchange. This enables them to take into account technical, financial, and environmental constraints experienced by both industrial producers and waste managers, when designing environmental policies, such as EPR and other policies that adopt a life-cycle approach.

The *fora* where this information exchange could take place include sectoral trade and industry associations, conferences, journals, but also Internet sites such as web-based markets for secondary materials or “platforms” where industrial producers, retailers and consumers can exchange information on take-back systems, collection, recycling and disposal of end-of-life products.

Recommendation 4 is consistent with the general goals of waste policies that are being promoted at both the OECD and national level (i.e. preventing and minimising waste generation).

Recommendation 5

“Member countries should ... integrate into national policies and/or programmes the core performance elements listed in Annex I to this Recommendation, which constitute the basic requirements to ensure environmentally sound management of waste;”

This is a key recommendation to Member governments, because it asks them to integrate into their own ESM policies and programmes the application, at the level of individual facilities, of the six Core Performance Elements (CPEs) that are annexed to the OECD ESM Recommendation. These CPEs are described here as the “basic requirements to ensure environmentally sound management of waste”. Implementation of these six CPEs should also lead to a more level playing field among waste management facilities in the OECD area, if standard approaches to ESM at that level were to emerge. These two goals are characterised in the objectives of the ESM Council Recommendation (see Section 3 above) as a “level playing field of high environmental standards”.

OECD countries should therefore put in place appropriate policies or programmes to encourage facilities operating in their jurisdictions to apply these CPEs. Governments may also need to design appropriate tools to facilitate this implementation.

It is noted that, in many OECD countries, waste management facilities are already subject to the provisions embodied within the CPEs annexed to the OECD ESM Recommendation. Indeed, the CPEs include not only many provisions which already exist in related environmentally sound management regulations and environmental management systems (EMSs), but also some additional provisions which can be found in other “more ambitious” EMSs. However, the level of ESM specified by the OECD CPEs would not be expected to exceed ESM requirements embodied in existing environmental regulations, guidelines and/or EMSs.

Although the OECD CPEs are considered a set of “basic requirements” to be implemented by facilities, this does not prevent facilities from seeking a higher level of environmental performance. The implementation by a facility of

all six CPEs contained in the OECD ESM Recommendation, to the extent feasible and appropriate, will help provide assurance that its waste is being managed in an environmentally sound manner (see also Section 8).

Recommendation 6

“Member countries should ... consider incentives and/or relief measures for facilities that fulfil the core performance elements listed in Annex I to this Recommendation;”

Under this recommendation, governments are encouraged to reward facilities which have implemented the CPEs. The instruments could be incentives and/or relief measures leading to a benefit for the enterprise in terms of finance, regulation, good image, etc. (i.e. some reduction of the additional burden brought about by the implementation of the CPEs).

There is a range of incentives that some governments are already using to encourage facilities to introduce environmental management systems, and that could be used in the OECD context for facilities implementing the CPEs:

- ✓ reducing the frequency of regulatory inspections or of monitoring requirements and facilitating emission controls which can be performed by the staff itself;
- ✓ reducing reporting requirements that are duplicating those of environmental management systems in place;
- ✓ expediting and consolidating environmental permits/licences and auditing and certifying facilities.
- ✓ waiving certain environmental regulations, that are duplicating the provisions of environmental management systems: for example, in certain European countries where environmental reporting is mandatory through national law, EMAS-registered facilities are exempted from environmental reporting under national law;
- ✓ providing technical assistance and information;

- ✓ providing financial support (facilities having an EMS may be wholly or partly exempted from registration/permit fees, part of their EMS implementation costs is reimbursed, etc.);
- ✓ providing special recognition or award;
- ✓ providing preferences through public procurement;
- ✓ providing information about the value of such systems.

Governments could also consider the introduction of technology-enabling incentives, such as research grants and other methods to develop new waste management options (e.g. elimination of hazardous waste streams or conversion of hazardous wastes to useful products).

Empirical analyses of results of a survey conducted by the OECD in 2005²¹ suggest that the two main public policy incentives that encourage a facility to introduce an EMS are the perceived reduction of the frequency of inspections, and the provision of public financial support. For small and medium-sized enterprises, the provision of information on the nature and benefits of an EMS by public authorities also seems to play a significant role. However, this is apparently not the case for larger firms. Fulfilment of the CPEs may result in additional costs and administrative burden for the facility, which may act as a deterrent to implementation.

To encourage the implementation of the CPEs by SMEs, the inspection and/or auditing (and certification if pursued by a facility) embodied in the CPEs (again, see Section 8) could also be simplified for facilities which already implement provisions equivalent to those of the OECD CPEs.

Governments, of course, are free to use any form of incentive they choose. However, caution is recommended, in order to avoid introducing measures which could have a counter-productive effect. For example, when firms are encouraged to implement the CPEs through relief measures (such as reduced frequency of inspections, audit reports or emission measurements), it is important that the “driver” for doing this be clearly perceived as an effort to reduce administrative costs, rather than to avoid regulatory oversight altogether.

²¹ See “Business and the Environment. Policy Incentives and Corporate Responses”, (OECD, 2007).

Recommendation 7

“Member countries should ... implement the technical guidance for environmentally sound management of waste that has been developed by the OECD and, where appropriate, work towards the implementation of other ESM guidance referred to in Annex III to this Recommendation;”

In addition to this Guidance Manual related to the ESM Recommendation (including its CPEs), technical guidance has also been developed by the OECD for used and scrapped personal computers (see Annex II to the Recommendation). Member countries are encouraged to take this guidance into account.

They are also encouraged to implement the ESM technical guidance developed by the Basel Convention (see Annex III below).

Recommendation 8

“Member countries should ... move towards internalisation of environmental and human health costs in waste management, taking into account the differences between hazardous and non-hazardous waste;”

In many cases, environmental and human health **costs** resulting from waste management practices are not fully reflected in the financial costs of waste management. These external costs may vary considerably according to factors such as local conditions, or the nature of the waste (hazardous vs. non-hazardous). The financial costs of waste management may therefore be less than total social costs (including external costs), with the difference being borne by other economic agents. As long as this is the case, waste generators and managers may not have sufficient incentive to adopt an appropriate level of waste management within their facilities.

In the same way, any environmental **benefits** of production from waste should be internalised into waste management decisions at the facility level. For example, the recovery and production of metals from wastes may require less energy, use of chemicals, and disturbance of land in comparison to production of the same metals from ore. While metals produced from waste must compete in open markets, the added environmental benefits they bring should be fully

recognised, and their production should be encouraged in an appropriate manner.

Recommendation 9

“Member countries should ... provide incentives to take part in environmentally sound recycling schemes;”

Though the OECD ESM Recommendation covers all waste management activities (see Section 5.3), this 9th recommendation focuses in particular on recycling. It emphasizes the need for governments to both support existing recycling schemes/policies and encourage the development of new environmentally sound ones, by providing incentives to potential recycling markets participants.

Recycling is one of the main contributors to waste minimisation policies and may lead to significant environmental benefits relative to production from primary sources. Material recovery from waste should therefore be strongly encouraged, especially when products of recycling can later be expected to compete in open markets. Governments should support and encourage recycling schemes which are carried out in a sustainable manner, which means that they should not unduly harm human health and environment and remain economically viable.

Governments will, of course, assess the costs and benefits of and, where necessary decide on, the appropriate instruments and incentives they wish to use (e.g. whether binding or non-binding, direct or indirect, whether financial, regulatory, educational or information-based). The following are examples of incentives already being used by governments to enhance **recycling schemes in general** (i.e. compared to other “less environmental” waste management options):

- ✓ development of collection schemes for recyclables;
- ✓ financial incentives, such as the landfill tax;
- ✓ regulatory instruments, such as a landfill ban for certain wastes (e.g. for used tyres);

- ✓ relief measures, such as the exemption from being subject to a regulation;
- ✓ related policies, such as Green Public Procurement;

In addition to these incentives for recycling schemes in general, other incentives could be used by governments to encourage **environmentally sound recycling schemes in particular**. Such incentives could include:

- ✓ financial incentives, such as deposit-refund systems, subsidies for R&D on recycling technologies or implementation of new technologies;
- ✓ regulatory instruments, such as the setting of environmental standards, recycling targets or minimum % recycled content for products, and voluntary agreements such as partnerships with industry, take-back programmes, etc.;
- ✓ educational, communication and information-based instruments, such as eco-labels, information campaigns, brochures on various topics, such as separate collection, etc.;
- ✓ policy approaches based on well-known principles, such as Extended Producer Responsibility (EPR) and Design for Environment (DFE), etc.

Recommendation 10

“Member countries should ... encourage the development and implementation of an environmental liability regime for facilities that carry out risky or potentially risky activities to ensure adequate measures upon definite cessation of activities and to prevent environmental damage”.

There have been a number of cases in OECD countries where bankruptcies of industrial companies have resulted in orphan brownfield/contaminated sites, and where public authorities have had to pay large sums of money for their clean-up and remediation. To encourage industrial managers to assume their responsibility when carrying out waste management activities which pose environmental and human health risks (as well as to avoid imposing clean-up

costs for environmental damages resulting from the cessation of private or public industrial activities on tax payers instead of on the polluter), provision should be made for environmental liability, including liability for clean-up costs, through appropriate instruments (e.g. legislation, contractual arrangements). For example, France has adopted a regulation that stipulates that the waste generator himself can be held responsible, if he/she can be identified.

In addition, operators of risky waste management activities should insure their potential liabilities, in order to ensure prevention and remediation of any environmental damage. For example, the legislative and regulatory frameworks for liability for environmental clean-up costs is already well developed in the US, enacted in 1980 -- through the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) or so-called "Superfund", and amended in 2002, through the Small Business Liability Relief and Brownfields Revitalization Act (Brownfields Law). CERCLA established requirements for the liability of responsible parties and cleanup of releases of hazardous waste at closed and abandoned hazardous waste sites. The Brownfields Law amended CERCLA by providing additional funding for the assessment and clean-up of brownfields. It also clarified CERCLA liability protections, and provided funds to enhance roles for State and Tribal Response Programs. In addition, since 1982, regulations under the Resource Conservation and Recovery Act (RCRA) have required owners or operators of active and future hazardous waste treatment, storage and disposal facilities to demonstrate financial assurance for the costs of closure and post-closure care of their hazardous waste facilities. Owners and operators must also demonstrate liability coverage for bodily injury and property damage to third parties. The 1984 amendments to RCRA extended to owners and operators the requirement to clean up releases of hazardous waste and hazardous constituents from solid waste management units, regardless of the time the waste was placed in the units. Other regulations require owners or operators of underground storage tanks containing petroleum and certain hazardous substances to demonstrate financial responsibility for taking corrective action and for compensating third parties for bodily injury and property damages caused by accidental releases from the tanks.

Legislation has also recently been agreed in Europe, through the EC Directive 2004/35/EC of the European Parliament and of the Council of 21 April 2004 "on environmental liability with regard to the prevention and remedying of environmental damage".

Recommendation 11

“Member countries should ... ensure that the implementation of the core performance elements listed in Annex I to this Recommendation does not discourage recycling in Member countries, recognising, in particular, the flexibility appropriate for each Member country to increase the rates of environmentally sound recovery of low risk waste”.

As Voltaire said: *“le mieux est l’ennemi du bien”*, (the English equivalent being « *leave good enough alone* »). The imposition of numerous and overly stringent environmental requirements to low-value and low-risk materials may impede or discourage their recycling. To avoid this counter-productive effect -- which may result in the diversion of materials to disposal (instead of their recycling) or to less environmentally sound management options, based on cost considerations alone -- governments should adjust implementation of the CPEs according to the level of risk presented by both the type of waste and the facility involved.

For example, the objectives for environmental, health and safety performance included in the environmental management system of the facility (see CPE1), could be set at a level which is “appropriate”, i.e. a level that is both economically and technically achievable by the facility, while corresponding to the level of the risk incurred by the particular waste involved. This flexibility may be particularly advantageous to facilities that recycle low-risk (non-hazardous) waste, and therefore lead to additional environmentally sound recycling.

8. Core Performance Elements (CPEs)

This section of the Guidance Manual provides additional perspective on the “Core Performance Elements” part of the ESM Council Recommendation.

“Waste management facilities, including recovery facilities, should, within the framework of laws, regulations and administrative practices in the countries in which they operate, and in consideration of applicable international agreements, principles, objectives and standards, take due account of the need to protect the environment, public health and safety, and generally conduct their activities in a manner contributing to the wider goals of sustainable development.

In particular, taking into account the size of the enterprise, especially the situation of SMEs, the type and amount of waste, the nature of the operation and domestic legislation, the following core performance elements would apply to waste management facilities:...”

The OECD ESM Recommendation refers to six “Core Performance Elements”, which are “basic requirements” to be met for ensuring that waste is managed in an environmentally sound manner (see *recommendation 5*). These six CPEs describe measures to be taken by waste management facilities.

This “chapeau” to the CPEs encourages waste management facilities to apply the basic principles of the ESM Council Recommendation to their operations. It also reemphasises the need for flexibility in implementation, citing the need to take into account a range of particular circumstances, nature of the operation, size of the enterprise, etc.).

The flexibility related to differing circumstances provides the context for implementation of the CPEs at the facility level. A facility that chooses to implement the CPEs in the OECD Council Recommendation, in order to be recognised as managing its waste in an environmentally sound manner, should consider all CPEs and apply each of the CPEs to the extent appropriate to its size, type of activity, and the type of waste it handles. Such implementation may need to be facilitated by governmental officials, and will need to be in compliance with all relevant laws and regulations. There may be circumstances

where it may be concluded in a transparent manner (perhaps in consultation with independent experts, such as the third party auditor, verifier, or certifier, and/or governmental officials) that there may not be a need to apply a particular CPE.

Implementation of these six CPEs aims either at introducing appropriate ESM in facilities which do not yet have it, or improving existing ESM practices at facilities where some efforts have already been made. In this way, the goal of achieving a “*level playing field of high environmental standards*” will be promoted.

Most of the CPEs actually already exist in the form of various national or international legal instruments. For instance, the EC Directive on IPPC sets the following two obligations for industrial facilities, which are taken up respectively under CPE 3 and CPE 6: 1) to make monitoring data available to the public; and 2) to avoid pollution risk in case of definitive cessation of activity. Also, several conditions for issuing a permit to an installation (see Article 9 of the EC Directive on IPPC) are similar to a number of provisions included in CPE 1. However, it should again be noted that IPPC requirements apply only to large facilities, and that a great number of SMEs of the waste management industry are thus not concerned by these EU requirements, although they are subject to the general requirements of the Waste Framework Directive (2006/12/EC), such as the one on waste permitting, in order to protect human health and the environment.

In this section of the report, guidance is provided only for the CPE 1. This is because the other CPEs were regarded by the WGWR as being sufficiently clear that they did not need additional elucidation at this stage.

8.1 CPE 1

1. The Facility Should Have an Applicable Environmental Management System (EMS) in Place

As an underlying principle of ESM, waste management facilities should have an applicable environmental management system (EMS) in place. A fully developed EMS should be certified by a recognised party and should include:

- *Measurable objectives for continual improvements in environmental performance, including periodic review of the continuing relevance of these objectives;*
- *Regular monitoring and re-examination of progress toward environmental, health and safety objectives;*
- *Collection and evaluation of adequate and timely environmental, health and safety information regarding facility activities;*
- *Provisions included in CPEs 2-6;*
- *Applicable ESM technical guidance.*

The first Core Performance Element (CPE 1) to be applied by waste management facilities is an important vehicle for managing waste in an environmentally sound manner within the facility. The first part of CPE 1 deals with the need to have an “applicable” Environmental Management System (EMS) in place within waste facilities, taking into account the size of the enterprise, the level of risk associated with facility operation, and other factors relevant to implementation. An EMS is often designed to be integrated into the “plan, do, check and act” model for continuous improvement, and many existing EMSs already use this approach. It helps to ensure that environmental issues are systematically identified, controlled, and monitored, in the context of the need to reinforce continuous improvement.

Several “applicable” EMSs already exist in OECD countries: ISO 14001, which is worldwide, and EMAS, which is specific to European countries and has somewhat more ambitious requirements than ISO 14001²².

Also considered to be “applicable” EMSs are those that are “tailor-made” for individual circumstances – for example, EMSs designed for the purpose of specific industrial sectors or enterprises. An example is the BS 8555 in the United Kingdom, which was introduced in 2003 to help SMEs achieve ISO14001 and EMAS. Another example is the EFB/SWAM system, which is specially designed for waste management facilities, and is widespread in Germany²³, Austria, the Czech Republic, and the Slovak Republic. In the United States, the Recycling Industry Operating Standard (“RIOS”), created by the scrap recycling industry, is a management system integrating environmental, quality, and health and safety standards. This is an ISO-compatible management system that allows for third party audits, registration by certifying bodies, and certification.

While the implementation of an applicable EMS at a facility fully satisfies CPE 1, CPE 1 also provides some guidance as to what a “fully developed” EMS would contain, should a facility choose to strive for a higher degree of confidence afforded by a “fully developed” EMS. A fully developed EMS, as encouraged under CPE 1 as a higher bar to the applicable EMS, calls for certification as well as measurable objectives and regular monitoring of progress toward environmental, health, and safety objectives.

In accordance with *recommendation 5*, member countries are encouraged to implement all the CPEs through their national original policies or programmes as they constitute the basic requirements to ensure environmentally sound management of waste. As such, OECD governments should actively promote the use of an “applicable” EMS by waste management facilities operating within their jurisdictions. Facilities that do not yet have an EMS in

²² EMAS includes two additional requirements in comparison to ISO 14001: the provision of an environmental performance statement and making information publicly available.

²³ In Germany in 2005, 6300 *waste* facilities were EFB certified and 2500 *industrial* facilities were EMAS registered. EFB means “Entsorgungsfachbetriebe” in German or SWAM in English (Specialised Waste Management Facilities). EFB/SWAM certified facilities have to comply with specific provisions. See: <http://www.bmu.de/english/documents/doc/3234.php>.

place should work toward doing so. Facilities that already have such a system in place are encouraged to work toward upgrading it to a “fully developed” one, including the need for certification.

Many of the elements of a fully developed EMS are already being applied by some member countries and some waste facilities. Depending on the country or site, some of these provisions are legally-binding through existing international, national or sub-national legal instruments, while others are applied on a voluntary basis. Certification of a fully developed EMS should be performed by a certifier supervised by an accreditation body that is recognised by the member country where the facility is located. In every OECD country, there is an accreditation body, institute or organisation, which may or may not be part of government, and whose purpose is to ensure that certifiers are competent, independent and overseen by an authoritative body. Examples of nationally recognised accreditation bodies include: the ANSI-ASQ National Accreditation Board (ANAB) in the US where ANSI stands for American National Standards Institute and ASQ for American Society for Quality, the Standards Council of Canada (SCC), the Japan Accreditation System for Product Certification Bodies, the Swiss Accreditation Service (SAS), the Korea Accreditation Board; etc. Nationally recognised accreditation bodies can also be internationally recognised as members of international associations, such as the International Accreditation Forum (the world association of Conformity Assessment Accreditation Bodies). Thus, certificates issued by certifiers accredited by any of the members of the international accreditation forum are recognised by all other members of this international forum.

The certification procedure for a fully developed EMS will then confirm whether the facility has considered and applied the CPEs to the extent appropriate to its size, type of activity and the type of wastes it handles²⁴.

Because third-party certification could, in some cases, be too expensive or impractical for companies (in particular for SMEs), facilities may, as an early step, prefer to develop (perhaps in co-operation with industrial organisations) self-certification/self declaration systems. Governments and other stakeholders may need to consider the overall credibility of such certification arrangements.

²⁴ For example, a facility may have assessed the need for a closure plan (CPE 6) and has documented to the satisfaction of the certifier that CPE 6 is not deemed required for that facility.

It should be reemphasised that all of these EMSs are voluntary. Also fully developed EMSs are not necessarily considered to be “stricter” than tailor-made systems (or vice-versa)²⁵. In addition, tailor-made EMSs are likely to be well-targeted at individual waste management activities or at the specific conditions facing SMEs, and may, in particular cases, actually be closer to fully developed EMSs than they are to less comprehensive systems, such as ISO 14001.

CPE 1 continued:

Licensed/authorised/permited waste management facilities should be subject to periodic inspections and/or audits, normally on an annual basis, by a recognised independent auditor. The auditor shall:

- ***verify the conformance of the facility with CPEs 2 to 6, relevant environmental regulations, and, if applicable, current EMS systems, such as the ISO 14001 Environmental Management or the European Community Eco-Management and Audit Scheme (EMAS), or any other equivalent national or sub-national system;***
- ***assess the performance of the facility regarding environmental, health and safety aspects against measurable objectives.***

The facility should make publicly available an annual report describing the firm's EMS system and the achieved environmental, health and safety performance.

Inspections and/or audits should be performed by somebody with recognised expertise in the relevant area (i.e., incineration, EMS assessment, etc.) and who is independent enough that the inspection and/or audit results will be reasonably perceived as credible.

The objective of the inspection and/or auditing procedure would be to:

²⁵ For example, see “Comparative Study SWAM-EMAS-ISO14001-ISO9001” from KEC (Kanzian Engineering & Consulting GmbH (July 2004). This comparison shows that the SWAM certification for specialised waste management companies has stricter requirements than ISO 14001 and EMAS with respect to legal compliance and adequate insurance protection.

- ✓ check conformance of the facility with all CPEs, with relevant environmental regulations, and current EMS systems if applicable. Verifying compliance with existing laws and regulations is recommended not only in the OECD Council Recommendation, but is also embodied in EMAS and (perhaps) some of the tailor-made EMSs. Under ISO 14001, a facility is required to know whether or not it is in compliance with applicable laws and regulations; without that knowledge, the facility would be considered out of conformance with that ISO standard. It is implicit in the standard that satisfying this ISO 14001 requirement involves carrying out a facility level compliance audit;
- ✓ assess the performance of the facility with respect to environment, health and safety objectives.

In the context of ISO 14001, “certification” means “the issuance of written assurance (the certificate) by an independent, external body that has audited an organisation’s management system and verified that it conforms to the requirements specified in the standard”. “Registration” means that the auditing body then records the certification in its client register. It is different from “accreditation”, which means formal recognition by a specialised body (the accreditation body) of the ability of the certification body to carry out the ISO 14001 certification.

There are different degrees for a facility/enterprise to demonstrate conformity with ISO 14001:2004:

- ✓ make a self-assessment and self-declaration;
- ✓ seek confirmation of its conformity by parties demonstrating an interest in the enterprise, such as customers;
- ✓ seek confirmation of its self-declaration by a party external to the organisation; or
- ✓ seek certification/registration of its environmental management system by an external body.

A facility/enterprise can therefore implement ISO 14001 standards without having its environmental management system audited and certified as

conforming to the standards by an independent, external certification body. It is neither compulsory for an ISO 14001 facility/enterprise to be certified, nor for a certifier to be accredited. However, audits carried out and certificates issued by independent accredited certification bodies are perceived on the market as having increased credibility. The ISO itself does not audit EMSs or issue certificates: such conformity assessments are performed by independent testing laboratories and certification bodies that may also be ISO member national standardisation institutes.

Under the EMAS system, the equivalent of the “certification” in the ISO system is called “verification”. Verifiers are “organisations or individuals with expert knowledge in the field of EMAS, which are independent of the organisation being verified and of the organisation’s auditor or consultant. Their task is to ensure that organisations seeking registration are in compliance with the requirements of the EMAS regulation. Verifiers are responsible for checking that an organisation is in legal compliance; has carried out an initial environmental review (if appropriate); has a fully operational environmental management system which is audited in a systematic, objective and periodic way; and that it has prepared an environmental statement in accordance with the EMAS regulation. They also verify the reliability, credibility and correctness of the data and information in the environmental statement, as well as other environmental information provided by organisations”²⁶. Once the implementation of the EMAS regulation by the facility/enterprise has been approved and validated by the accredited EMAS verifier, the statement of the verifier is forwarded to the EMAS competent body for registration and made publicly available – all this before the facility/enterprise can use the EMAS logo.

The EMAS verifiers are accredited in the first instance by their accreditation body. An accreditation body is “an independent, impartial institution or organisation responsible for the accreditation and supervision of environmental verifiers and designated by the Member State. Member States may use existing accreditation institutions, the EMAS competent body or designate any other appropriate body”.

As can be seen, ISO 14001 allows for greater flexibility and discretion than EMAS concerning recognition of the implementation of environmental

²⁶ The EMAS website: http://europa.eu.int/comm/environment/emas/about/work_en.htm.

standards by a facility/enterprise. Under the OECD Recommendation, the certification procedure is a key condition for validating the efforts of facilities to go beyond implementation of an “applicable” EMS toward implementation of a “fully developed” EMS. Depending on the type of EMS they are applying, facilities may therefore need to complement the auditing procedure with the additional step of certification by a “recognised party” if they want to be considered as having implemented a fully developed EMS.

More specifically, firms satisfying CPE 1 whose applicable EMS only conforms to ISO 14001 without having been certified (i.e. ISO 14 001 registered) by an accredited body (which is optional under ISO 14001) would have to go through the certification procedure, in order for them to be considered as having applied a fully developed EMS. On the other hand, firms whose EMS has been EMAS-registered, would not need to apply any additional procedures, because EMAS already includes provisions which are quite similar to those of a fully developed EMS. With regard to firms implementing a sub-national or tailor-made EMS, they may or may not need to implement the certification procedure, depending on the conformity of their particular EMS with the provisions of a fully developed EMS.

In cases where facilities already have an EMS which has been audited and certified by a recognised/accredited body, implementation of the additional provisions contained in CPE 1 for the implementation of a fully developed EMS could be audited and/or certified at the same time as any requirements of other EMS are audited and certified. Such mutual recognition or compatibility rules already exist, for example, between SWAM and EMAS which have the same auditors and between ISO 14001 and EMAS. EMAS verifiers only assess those elements which are not covered by the other recognised standard (ISO, in this case).

Some governments also use this approach when auditing enterprises, especially SMEs. For instance, in Denmark, inspections/audits conducted by local authorities to issue permits/licences are simplified for EMAS-registered enterprises. The same kind of flexibility could be used for facilities seeking to implement the CPEs of the OECD Recommendation. Properly designed common procedures, accepted by OECD Member countries, might also facilitate the task of auditors and certifiers, as well as saving time (and costs) for facilities themselves.

Facilities should also produce, and make publicly available (i.e., available upon request), reports related to their EMS system, and their achieved

environmental, health and safety performance, including the specific provisions, if applicable for the facility, listed for a fully developed EMS under CPE 1. The assessment of environmental, health and safety performance should be carried out and made publicly available on a regular basis (normally annually, although every three years may be appropriate in particular circumstances, e.g. in the case of SMEs). Reporting and making publicly available the facility's EMS and the performance achieved by the facility is an important provision of the OECD Recommendation; this provision also exists under EMAS and possibly under some tailor-made EMSs, but not under ISO 14001.

CPE 1 continued:

Concerning SMEs, the procedures for achieving certification/ registration and reporting should be simplified in comparison with large facilities. Because regular audits may create a burden and impose excessive costs on SMEs, their audits should be less complicated and could be carried out less frequently (normally every three years) than those of large facilities, while being consistent with the need to maintain an ESM of waste. Also the environment, health and safety report could be made publicly available every three years.

In addition, there are domestic EMS systems which are specifically tailored to address the needs of SMEs. Whatever EMS system will be selected, it is recommended that the government or large companies have a programme in place to provide support for SMEs in terms of information and know-how sharing.

This part of CPE 1 draws attention to the particular case of small and medium-sized enterprises (SMEs). As discussed earlier (Section 5.4), the term "SMEs" refers to the national definition that is in effect. The national setting (see Appendix IV below) is most likely to reflect the particular industrial structure of each country, and is therefore the most appropriate basis to use for deciding what constitutes an "SME" for the purposes of this Guidance Manual. In cases where no national definition exists for SME, individual countries will apply their own approach, in accordance with national laws and regulations, to determine what may constitute an SME in the context of the OECD ESM Recommendation.

SMEs may experience financial and technical difficulties in fulfilling the key provisions of CPE 1 and implementation may be impractical or inappropriate. Thus, it is recommended here that SMEs should benefit from more favourable or flexible conditions compared to those of large facilities. In general, complying with the same environmental requirements and standards proportionately represents more expenses, time and employees for SMEs than for large enterprises²⁷.

An OECD survey conducted in 2004-2005 on Environmental Policy and Private Firms²⁸ in seven countries reveals that the size of the facility does influence the decision to introduce an EMS. Indeed, 20 % of smallest facilities (50-99 employees) have an EMS, compared to more than 60% for the largest facilities (more than 500 employees).

Most governments seek to encourage SMEs to implement an environmental management system through various incentives or relief measures, some of which were discussed earlier (Section 7). Additional examples of incentives include:

- ✓ the development of EMSs, specifically designed for SMEs. For example, the Eco-Action 21 in Japan includes its own auditing and certification procedures;
- ✓ relaxing verification and reporting procedures, by spacing out the due dates of inspections and reporting less frequently (for example, every three years instead of every year);
- ✓ exemption from certain national regulations which may duplicate the EMS's provisions;

²⁷ It has been estimated that, in the EU, the implementation costs for enterprises of setting up EMAS, including external consulting fees and associated communication and certification costs, are on average 10,000 € for very small companies (less than 10 employees), 20,000€ for small companies (less than 50 employees), 35,000€ for medium-sized companies (50-250 employees) and 50,000€ for large companies (more than 250 employees). See:http://www.inem.org/new_toolkit/comm/environment/emas/toolkit/index.htm.

²⁸ See "Business and the Environment. Policy Incentives and Corporate Responses", (OECD, 2007).

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- ✓ free provision of information, advice and expertise concerning EMSs and their benefits, related environmental regulations and subsidisation programmes;
- ✓ public recognition and advertising of such facilities through the publication of their environmental performance or special registers;
- ✓ financial incentives, such as assistance for investments, financial support for workers' training on environmental matters, reimbursement of part of the auditing and certification costs (sometimes up to 75 % of the external consultant costs), and reduction of inspection fees and preference in public procurement;

This part of CPE 1 also recommends that governments and large enterprises organize the sharing of information concerning the implementation of EMSs, so that SMEs can benefit from the experience of large enterprises in this area.

However, all of these incentives should be seen as ways of making more effective and efficient the implementation of both the eleven recommendations and the six Core Performance Elements contained in the OECD ESM Recommendation. They should specifically *not* be interpreted as a way of making the level of implementation lower than what the SME is reasonably capable of implementing.

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**APPENDIX I:
RECOMMENDATION C(2004)100 OF THE COUNCIL
ON THE ENVIRONMENTALLY SOUND MANAGEMENT (ESM)
OF WASTE* , AS AMENDED BY C(2007)97**

THE COUNCIL,

Having regard to Article 5 b) of the Convention on the Organisation for Economic Co-operation and Development of 14th December 1960;

Having regard to Decision-Recommendation C(90)178/FINAL of 31 January 1991 on the Reduction of Transfrontier Movements of Wastes;

Having regard to Decision C(2001)107/FINAL issued in May 2002¹, which is a revision of Decision C(92)39/FINAL on the Control of Transboundary Movements of Wastes Destined for Recovery Operations;

* For the purpose of this Recommendation, wastes are substances or objects, other than radioactive materials covered by other international agreements, which are:

- (i) disposed of or are being recovered; or
- (ii) intended to be disposed of or recovered; or
- (iii) required, by the provisions of national law, to be disposed of or recovered.

Reference: OECD Decision C(2001)107/FINAL.

Considering this definition of waste, “waste management facilities” also includes recovery facilities.

¹ This Decision was adopted in two steps by the OECD Council: Decision C(2001)107 was adopted on 14 June 2001 without section C of Appendix 8 to the Decision. Section C, which includes the forms for the notification and movement documents and the instructions to complete them, was adopted on 28 February 2002 as Addendum 1 to Decision C(2001)107. Section C was then incorporated into Decision C(2001)107 to form one single Act which was released as Decision C(2001)107/FINAL in May 2002.

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Having regard to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal of 22 March 1989, in particular Article 4 of this Convention;

Having regard to the “Guidance Document on the Preparation of Technical Guidelines for the Environmentally Sound Management of Wastes Subject to the Basel Convention”, the “Guidance Document on Transboundary Movements of Wastes destined for Recovery Operations”; and the Basel Declaration on Environmentally Sound Management adopted by Ministers at the 5th Meeting of the Conference of the Parties in December 1999;

Agreeing that the implementation of environmentally sound and economically efficient management of waste should achieve the following objectives:

- sustainable use of natural resources, minimisation of waste and protection of human health and the environment from adverse effects that may result from waste;
- fair competition between enterprises throughout the OECD area through the implementation of “Core Performance Elements” (CPEs) by waste management facilities, thus contributing to a level playing field of high environmental standards;
- through incentives and measures, diversion of waste streams to the extent possible from facilities operating with low standards to facilities that manage waste in an environmentally sound and economically efficient manner;

On the proposal of the Environment Policy Committee,

RECOMMENDS that Member countries elaborate and implement policies and/or programmes to ensure that waste be managed in an environmentally sound and economically efficient manner. Domestic policies and/or programmes implemented under this Recommendation shall not lead to or create unnecessary obstacles to international trade of waste destined for recovery operations.

For the purpose of this Recommendation, taking into account the size of the enterprise, especially the situation of small and medium size enterprises

(SMEs), the type and amount of waste, the nature of the operation and their domestic legislation, Member countries should:

1. have an adequate regulatory and enforcement infrastructure at an appropriate governmental level, consisting of legal requirements such as authorisations/licences/permits, or standards;
2. develop and implement practices and instruments that facilitate the efforts of competent authorities to monitor the implementation of the CPEs listed in Annex I to this Recommendation and control compliance of waste management activities with applicable national and international rules and regulations. In case of non-compliance with existing rules, prompt, adequate and effective actions should be undertaken;
3. ensure that waste management facilities are operating according to best available techniques² while taking into consideration the technical, operational and economic feasibility of doing so, and work towards continually improving environmental performance;
4. encourage, through appropriate measures, information exchange between producers, waste generators, waste managers and authorities, including participation in sectoral trade or industry association activities addressing these issues, in order to foster waste prevention, optimise recovery operations and minimise quantities as well as potential risk of waste destined for disposal or recovery;
5. integrate into national policies and/or programmes the core performance elements listed in Annex I to this Recommendation, which constitute the basic requirements to ensure environmentally sound management of waste;
6. consider incentives and/or relief measures for facilities that fulfil the core performance elements listed in Annex I to this Recommendation;

² Use of best available techniques implies the use of technology, processes, equipment and operations that are based on scientific knowledge, whose functional value has been successfully tested in operative comparable plants.

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7. implement the technical guidance for environmentally sound management of waste that has been developed by the OECD and, where appropriate, work towards the implementation of other ESM guidance referred to in Annex III to this Recommendation;
8. move towards internalisation of environmental and human health costs in waste management, taking into account the differences between hazardous and non-hazardous waste;
9. provide incentives to take part in environmentally sound recycling schemes;
10. encourage the development and implementation of an environmental liability regime for facilities that carry out risky or potentially risky activities to ensure adequate measures upon definite cessation of activities and to prevent environmental damage;
11. ensure that the implementation of the core performance elements listed in Annex I to this Recommendation does not discourage recycling in Member countries, recognising, in particular, the flexibility appropriate for each Member country to increase the rates of environmentally sound recovery of low risk waste.

INSTRUCTS the Environment Policy Committee to:

- update as necessary the Core Performance Elements listed in Annex I to this Recommendation;
- update as necessary the existing technical guidance for ESM of specific waste streams listed in Annex II to this Recommendation according to technological progress and develop technical guidance deemed useful for additional waste streams;
- report to the Council, on the basis of the information received from Member countries, three (3) years after the adoption, on the implementation of this Recommendation.

**Annex I to the Recommendation:
Core Performance Elements for the
Environmentally Sound Management of Waste.**

Waste management facilities, including recovery facilities, should, within the framework of laws, regulations and administrative practices in the countries in which they operate, and in consideration of applicable international agreements, principles, objectives and standards, take due account of the need to protect the environment, public health and safety, and generally conduct their activities in a manner contributing to the wider goals of sustainable development.

In particular, taking into account the size of the enterprise, especially the situation of SMEs, the type and amount of waste, the nature of the operation and domestic legislation, the following core performance elements would apply to waste management facilities:

<i>1. The Facility Should Have an Applicable Environmental Management System (EMS) in Place</i>

As an underlying principle of ESM, waste management facilities should have an applicable environmental management system (EMS) in place. A fully developed EMS should be certified by a recognised party and should include:

- Measurable objectives for continual improvements in environmental performance, including periodic review of the continuing relevance of these objectives;
- Regular monitoring and re-examination of progress toward environmental, health and safety objectives;
- Collection and evaluation of adequate and timely environmental, health and safety information regarding facility activities;
- Provisions included in CPEs 2-6;
- Applicable ESM technical guidance.

Licensed/authorised/permitted waste management facilities should be subject to periodic inspections and/or audits, normally on an annual basis, by a recognised independent auditor. The auditor shall:

- verify the conformance of the facility with CPEs 2 to 6, relevant environmental regulations, and, if applicable, current EMS systems, such as the ISO 14 001 Environmental Management or the European Community Eco-Management and Audit Scheme (EMAS), or any other equivalent national or sub-national system;
- assess the performance of the facility regarding environmental, health and safety aspects against measurable objectives.

The facility should make publicly available an annual report describing the firm's EMS system and the achieved environmental, health and safety performance.

Concerning SMEs, the procedures for achieving certification/registration and reporting should be simplified in comparison with large facilities. Because regular audits may create a burden and impose excessive costs on SMEs, their audits should be less complicated and could be carried out less frequently (normally every three years) than those of large facilities, while being consistent with the need to maintain an ESM of waste. Also the environment, health and safety report could be made publicly available every three years.

In addition, there are domestic EMS systems which are specifically tailored to address the needs of SMEs. Whatever EMS system will be selected, it is recommended that the government or large companies have a programme in place to provide support for SMEs in terms of information and know-how sharing.

<p><i>2. The Facility Should Take Sufficient Measures to Safeguard Occupational and Environmental Health and Safety</i></p>

Workers of facilities should not be exposed to unacceptable occupational health and accident risks, related to the content of the materials they are handling, emissions from those materials and the equipment being used. The waste may include hazardous chemicals or toxic metals; they may emit toxic gases or release harmful dust. Workers may have to handle heavy loads, be exposed to vibration and noise of machinery. Also, the risk of fire, explosion,

etc. may exist in some cases. Consequently, adequate measures should be taken to avoid unacceptable occupational health and safety risks.

People living and working in the vicinity of a waste management facility should also not be exposed to unacceptable environmental health and accident risks. These risks relate mainly to the emissions, including noise, from the process and transport to and from the facility. Therefore, adequate measures should also be taken to minimise these impacts to human health. Adequate measures may include national as well as international regulations, agreements, principles and standards, whether mandatory or voluntary.

3. The Facility Should Have an Adequate Monitoring, Recording and Reporting Programme

The facility should have a monitoring and recording programme which covers:

- relevant legal requirements, including key process parameters;
- compliance with applicable safety requirements;
- effluents and emissions; and
- incoming, stored and outgoing waste, in particular hazardous waste.

All relevant environmental records should be maintained and made available to competent authorities according to national legislation and/or local authorisation/license/permit requirements. Waste management facilities should maintain records on the generation, collection, recovery or disposal of waste, its types and amounts which are to be made available to the competent authorities upon request.

On-site recovery or disposal of waste generated by the process concerned must be carried out in compliance with applicable laws and regulations and should be recorded appropriately. In case of off-site recovery or disposal, outgoing waste should be recorded appropriately and handed over only to environmentally sound recovery and/or disposal operations.

Upon request, and taking into account business confidentiality and the protection of intellectual property rights, reliable information on the activities of

the facility that may impact the environment or the health and safety of personnel should be made available to the public in a reliable and timely manner.

4. The Facility Should Have an Appropriate and Adequate Training Programme for the Personnel

The facility should have training in place for proper identification and handling of any hazardous components in incoming waste. Personnel involved in the management of waste and materials, in particular hazardous waste and materials, should be capable and adequately trained to be able to properly handle the materials, equipment and processes, eliminate risk situations, control releases and carry out safety and emergency procedures.

The facility should define and document the responsibility, authority and interrelations of key personnel who manage, perform and monitor the activities which may have adverse effects on the environment.

Adequate operative training programme for the personnel should be in place and properly documented.

5. The Facility Should Have an Adequate Emergency Plan

The facility should have a regularly updated plan for monitoring, reporting and responding to accidental or otherwise exceptional pollutant releases, including emergencies such as accidents, fires, explosion, abnormal operating conditions etc. The emergency plan should be based on the evaluation of existing and potential risks. An emergency co-ordinator should be designated to handle hazardous wastes. Large facilities would need a complete contingency plan. The plan should cover both short-term and long-term remedial activities. SMEs whose operation presents little or no risk would need a significantly more limited emergency plan. Any emergency plan should be periodically reviewed by the relevant authority and/or external auditor. Particularly, in case of SMEs the reviewing body could be the local fire fighting agency or corresponding municipal authority. This plan should be regularly tested and revised as appropriate, in particular after the occurrence of accidents or emergency situations.

6. The Facility Should Have an Adequate Plan for Closure and After-care

Generally, the facility should have an adequate plan for closure and after-care. The need for closure plans and financial guarantees is determined by applicable laws and regulations, taking into consideration the level of risk. Closure plans should be updated periodically and financial guarantees should ensure that the necessary measures are undertaken upon definite cessation of activities to prevent any environmental damage and return the site of operation to a satisfactory state, as required by the applicable laws and regulations.

Review and update of the core performance elements for the environmentally sound management of waste

The core performance elements of the OECD for environmentally sound management (ESM) of waste should be periodically reviewed in order to adapt them to technical development. The OECD's Working Group on Waste Prevention and Recycling (WGWPR) would make proposals for this purpose as needed.

**Annex II to the Recommendation:
Technical Guidance Developed by OECD for the
Environmentally Sound Management of Specific Waste Streams**

Technical guidance for the environmentally sound management of the following waste/material streams has been developed (see: <http://www.oecd.org/env/waste>):

- i) Used and scrap personal computers [ENV/EPOC/WGWPR(2001)3/FINAL]*

**Annex III to the Recommendation:
Other Selected Technical Guidance for
the Environmentally Sound Management of Specific Waste Streams**

“Technical guidelines” for the environmentally sound management of specific waste streams have also been developed by the Basel Convention and other international organisations and are considered useful for the implementation of the OECD Council Recommendation on ESM and the core performance elements:

1. Updated general technical guidelines for the environmentally sound management of wastes consisting of, containing or contaminated with persistent organic pollutants (POPs). Basel Convention, 2006.
2. Updated technical guidelines for the environmentally sound management of wastes containing or contaminated with polychlorinated biphenyls (PCBs), polychlorinated terphenyls (PCTs) or polybrominated biphenyls (PBBs). Basel Convention, 2006.
3. Technical guidelines for the environmentally sound management of wastes consisting of, containing or contaminated with the pesticides aldrin, chlordane, dieldrin, endrin, heptachlor, hexachlorobenzene (HCB), mirex or toxaphene or with HCB as an industrial chemical. Basel Convention, 2006.
4. Technical guidelines for the environmentally sound management of wastes consisting of, containing or contaminated with 1,1,1-trichloro-2,2-bis(4-chlorophenyl)ethane (DDT). Basel Convention, 2006.
5. Technical guidelines for the environmentally sound management of wastes containing or contaminated with unintentionally produced polychlorinated dibenzo-p-dioxins (PCDDs), polychlorinated dibenzofurans (PCDFs), hexachlorobenzene (HCB) or polychlorinated biphenyls (PCBs). Basel Convention, 2006.
6. Technical guidelines on the environmentally sound recycling/reclamation of metals and metal compounds (R4). Basel Convention, 2004.

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7. Technical guidelines for the environmentally sound management of biomedical and healthcare waste (Y1; Y3). Basel Convention, 2002.
8. Technical guidelines for the environmentally sound management of the full and partial dismantling of ships. Basel Convention, 2002.
9. Technical guidelines for the environmentally sound management of waste lead-acid batteries. Basel Convention, 2002.
10. Technical guidelines for the identification and environmentally sound management of plastic wastes and for their disposal. Basel Convention, 2002.
11. Technical guidelines on the identification and management of used tyres. Basel Convention, 1999.
12. Pollution Prevention and Abatement Handbook. World Bank, 1998.

**APPENDIX II:
EU DIRECTIVES MOSTLY CONTRIBUTING TO ESM**

In addition to the EU framework legislation (Waste Framework Directive, 1975 [75/442/EEC as amended], and the Hazardous Waste Directive, 1991 [91/689/EEC as amended]) that sets the foundation for ESM and the IPPC Directive [96/61/EC] that prescribes BAT, the following Directives implement ESM for 1) specific treatment processes and 2) waste flows.

1) European Union legislation on waste management operations:

- The Landfill Directive (1999) [1999/31/EC] facilitates and improves the management of landfill sites in an environmentally sound manner by requiring: specific criteria for the location of landfill sites; techniques and engineering to be used in relation to water control; and leachate management, the protection of soil and water and the control of methane emissions. In addition, the Directive proscribes the landfilling of certain wastes, requires the pre-treatment of waste and the classification of sites according to the degree of hazard;

- The Waste Incineration Directive (2000) [2000/76/EC] aims at reducing pollution caused by emissions into the air, soil, surface water and groundwater from incinerators and co-incinerators of hazardous and non-hazardous waste. This is to be achieved through stringent operational conditions and technical requirements and by setting up emission limit values for certain pollutants such as dioxins, heavy metals and acid gases (SO₂, NO_x and HCl). Residues from the combustion process must be minimised in their amount and harmfulness and recycled where appropriate, and, if not possible, disposed of only under certain conditions.

2) European Union legislation on specific waste streams:

- The Directive on Sewage sludge (1986) [86/278/EEC] aims at encouraging the correct management of the sludge from sewage treatment plants by regulating its use in agriculture in such a way as to prevent harmful effects on soil, vegetation, animals and man. It prohibits the sludge from being used in agriculture unless specified requirements are

fulfilled, such as its testing, pre-treatment and compliance with limit values for concentrations of heavy metals;

- The end-of-life vehicles (ELV) Directive (2000) [2000/53/EC] requires that ELVs are subject to de-pollution prior to dismantling, recycling or disposal and sets targets for re-use, recycling and recovery. Treatment facilities must operate to higher environmental standards and have permits if they want to deal with non-depolluted ELVs;

- The Waste Electric and Electronic Equipment (WEEE) Directive (2002) [2002/95/EC as amended] aims to minimise the impacts of electrical and electronic equipment on the environment during their life times and when they become waste. It encourages and sets targets for the collection, treatment, recycling and recovery of waste electrical and electronic equipment.

3) Other:

Other pieces of EU legislation regulate packaging waste, waste oils, PCB/PCT waste, titanium dioxide waste, POPs waste, batteries and mining waste (see the internet site: <http://europa.eu.int/comm/environment/waste/legislation/index.htm>).

**APPENDIX III:
BAT REFERENCE (BREF) DOCUMENT
FOR WASTE TREATMENT INDUSTRIES**

Under the explanation of the 3rd recommendation of the OECD Council Recommendation referring to the use BAT (Section 7.3), the definitions, principles and technical guidance already elaborated for BAT and applied within the EU have been mentioned as an example. Detailed information is provided below on the BAT Reference Document (BREF) specifically developed by the European Commission for waste management installations in the context of the Integrated Pollution Prevention and Control policy (see: <http://eippcb.jrc.es/pages/FActivities.htm>). This BREF is a useful tool to help managers to identify BAT, their performance and costs (investment and operating costs). It includes the following information:

1. a stocktaking of existing waste treatments, such as biological, physico-chemical and recycling treatments, regeneration processes or treatments for producing fuel from waste, applied to different types of wastes (solvents, waste oils, waste sludges, waste acids and bases, etc.). The BREF also describes the current levels of emissions (air, water, waste) and consumption of energy, water, and chemicals for each waste treatment installation and process.
2. As a second step, the BREF analyses in detail the techniques related to prevention, control, management, minimisation and recycling, which are considered as the most relevant for determining BAT and enhancing the environmental performance of a waste installation. Techniques that are generally seen as obsolete are not included. The BREF analyses for each technique and process the following parameters that allow the assessment of the extent of the facility's performance:
 - Achieved environmental benefits (ex.: the reduction of particulate emissions by electrostatic precipitators)
 - Cross-media effects (ex.: the release of vaporised heavy metals from the vitrification of solid waste, which requires an additional flue-gas treatment system)
 - Operational data (ex.: the use of near infrared spectroscopy (NIR) to separate waste on a belt conveyor makes impossible the separation of dark brown and black materials since the NIR light is almost

completely absorbed and hence no irradiation is reflected to the sensor).

- Applicability (ex.: the use of residues as fuel in waste oil treatment facilities)
 - Economics (ex.: for the evaporation of distillation residues of waste solvents, the use of a vacuum dryer involves an investment cost of € 1,2 millions, and operating costs between 100 to 150 € per tonne of residue treated).
 - Driving force for implementation (ex.: using the previous example, the driving force is the improvement of the recovery of solvents and waste minimisation)
 - Example plants (ex.: still for the above mentioned example, six installations in the world use the vacuum dryer, of which four in the EU).
3. Finally, the BREF selects among all techniques previously identified and analysed, those which can be considered as the appropriate reference to determine BAT and establish permit conditions. The associated consumption and emission levels represent the environmental performance that could be anticipated as a result of the application of the selected techniques, while taking into account the technical and economical feasibility. It should be noted that, due to the diversity of national regulations and geographical, social and economic conditions, BAT may not be applied in the same way everywhere. This is the reason why the BREF cannot be prescriptive but only used as a reference or guidance for applying BAT.

The information provided by the BREF could partly help OECD countries to evaluate what is technically and economically achievable in terms of best environmental performance within waste management facilities. It has been designed for the European Union only and for installations with a capacity over 10 tonnes per day of hazardous wastes treated, over 50 tonnes per day of non-hazardous waste treated or 3 tonnes per hour for incineration. This covers large as well as medium-sized facilities. Much of the guidance is also potentially useful for small installations. The BREF could be used as guidance towards applying BAT in the context of the OECD ESM Recommendation.

**APPENDIX IV:
SMALL AND MEDIUM-SIZED ENTERPRISES**

This appendix includes information on the definitions of small and medium-sized enterprises in Europe and North-America.

In the **European Union**, the new definition for SMEs includes “micro enterprises” which are not mentioned in the OECD Recommendation. This new definition is applied as from 1 January 2005 and replaces the former 1996 definition. The following thresholds are used to determine SMEs in Europe:

Table 1: Current thresholds for SMEs in Europe

Enterprise category	Headcount (unchanged)	Turnover or	Balance-sheet total
Medium-sized	< 250	€ 50 million (in 1996: € 40 million)	€ 43 million (in 1996: € 27 million)
Small	< 50	€ 10 million (in 1996: € 7 million)	€ 10 million (in 1996: € 5 million)
Micro	< 10	€ 2 million (previously not defined)	€ 2 million (previously not defined)

In the **US**, only a small “organisation” or “business” is defined while “medium” business is not defined. Definitions of small business entities, vary according to industrial sectors. The US does not differentiate between small, medium, or micro-sized businesses as the EU does. The Small Business Administration (SBA) defines a small business as an entity “that is independently owned and operated and which is not dominant in its field of operation”. In addition, the definition is largely based on numerical limits or size standards: the number of employees and the average annual receipts, which have been determined for each type of industry. US Federal agencies must use size standards defined by the Small Business Administration (SBA) for their programmes and regulations and must obtain approval from the SBA before adopting a size standard that differs from the SBA’s definition. The Resource Conservation and Recovery Act (RCRA), through which the US EPA regulates waste, defers to the SBA definition on all matters concerning small businesses. As such, the numerical definitions provided below (taken from SBA size standards table found at: <http://www.sba.gov/size/indextableofsize.html>) are those also used by RCRA for all programme rulemakings.

Table 2: Waste Management and Remediation Services (year 2006)
(as defined by the North American Industry Classification System, NAICS)

U.S. Industry Title	Size standards in millions of US dollars and euros of average annual receipts	Size standards in number of employees
Solid Waste Collection	\$11.5 (€9)	
Hazardous Waste Collection	\$11.5 (€9)	
Other Waste Collection	\$11.5 (€9)	
Hazardous Waste Treatment and Disposal	\$11.5 (€9)	
Solid Waste Landfill	\$11.5 (€9)	
Solid Waste Combustors and Incinerators	\$11.5 (€9)	
Other Non-hazardous Waste Treatment and Disposal	\$11.5 (€9)	
Remediation Services	\$13.0 (€10)	
Environmental Remediation Services		500
Materials Recovery Facilities	\$11.5 (€9)	
Septic Tank and Related Services	\$6.5 (€5)	
All Other Miscellaneous Waste Management Services	\$6.5 (€5)	

The US financial thresholds for the limited selection of small businesses provided in the table above¹ are comparable with the European thresholds related to enterprise turnover for “small” enterprises. With regard to “medium” enterprises, however, US definitions for Small Businesses would not be appropriate.

In Canada, the general understanding of SMEs is as follows: goods-producing firms are considered “small” if they have fewer than 100 employees; for service-producing firms the cut-off point is seen as 50 employees. Above that size, and up to 499 employees, a firm is considered “medium-sized”. The smallest of small businesses are called “micro-enterprises”, most often defined as having fewer than five employees. The term “SME” is used to refer to all businesses with fewer than 500 employees for manufacturing, and fewer than 300 employees for services.

¹ While the table above contains a selection of small business size standards for Waste Management and Remediation Services, there are other relevant US business sectors not noted here, that are categorized using different size standards, which would be relevant to ESM.