



Session 1

OECD Survey of ESM Practices As Related to Recoverable Wastes

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1.0 INTRODUCTION & BACKGROUND

This report is in response to an initiative by Environment Canada concerning an assessment of Organisation for Economic Co-operation and Development (OECD) member country practices as related to the environmentally sound management (ESM) of wastes destined for recovery operations. This work, undertaken on behalf of the OECD Working Group on Waste Management Policy (WGWMP), was carried out by SNC-Lavalin Engineers & Constructors.

As recognized during the October, 1999 WGWMP workshop in Cancun, Mexico, the understanding of scope and content of ESM varies greatly amongst member countries. It was agreed at that time that the concept of ESM needed further clarification at the international, national and facility levels. In general, a need was identified for member countries to be able to ensure that they have the proper infrastructure for ESM, and to access a procedure that assesses ESM when considering an export.

Workshop recommendations included the collection of country-specific ESM experience at the national level, as a first step towards providing a framework for implementing or improving associated practices. To this end, and as described herein, a survey form was prepared and distributed to OECD member countries.

As apparent from the referenced survey, its focus was on hazardous waste management programs and legislation as related to exports, imports and domestic (in-country) waste streams. Space was also provided at the end of the survey to describe associated practices for non-hazardous waste streams.

This report documents the findings of these investigations. Following a description of study methodology in Section 2 (including planned next steps), Section 3 summarizes the detailed results obtained. Section 4 identifies some of the more common ESM program elements for the member countries and Section 5 provides a brief overview of relevant conclusions from the undertaken work.

2.0 STUDY METHODOLOGY

One of the first tasks undertaken for this project, and indeed its primary focus, was the preparation and distribution of a survey instrument. The utilized survey form is provided in Appendix A. As evident therein, and as noted in Section 1, its emphasis was on hazardous waste practices. Space was allotted at the end of the form, however, for related comments regarding similar protocols for non-hazardous materials.

The surveys (in English or French) were initially distributed under the signature of John Myslicki, P.Eng. of Environment Canada's Transboundary Movement Division (see also Appendix A). The forms were distributed by e-mail and fax over February 23 and 24, 2000. When this was not possible, forms were sent to member countries by courier.

Representative contact names for the member countries were provided by the OECD. The contact list in this regard is provided in Appendix B. As noted in that appendix, the survey form was further copied to the following organizations for their information: UNECE, UNCTAD, SBC/UNEP, TUAC, BIAC and, the European Environmental Bureau (EEB). Following the original distribution, two reminder notices (with additional survey forms appended) were also sent out in an attempt to increase survey response rates.

In all, 16 completed surveys were received by the study team. Responses were obtained from Australia, Austria, Canada, Czech Republic, Denmark, Finland, France, Germany, Italy, Korea, Netherlands, Norway, Spain, Switzerland, UK and U.S.A. In addition, Poland provided information through a separate written response.

As a source of further information, related papers from the Cancun Workshop were also reviewed for those OECD countries for which a completed survey was not received. Such documentation, examined for Mexico, is addressed herein in a qualitative manner only (i.e. no changes were made to the illustrated numerical summaries).

The next steps in the process commence with the circulation of this report to OECD member countries and the Secretariat by mid-June, 2000. Following the receipt of comments, it is intended to revise the document as appropriate by the end of the following month. Study results will then be presented and discussed at the 51st meeting of the WGWP in Vienna (October 2 to 4, 2000).

3.0 SURVEY RESULTS

This section summarizes the results of the project survey activities. While the full survey form is presented in Appendix A, individual sections are repeated herein as an aid in understanding the results obtained from the member countries.

3.1 Hazardous Wastes Generation and Management

This section of the survey focused upon generated quantities of hazardous wastes in each country, the proportions recovered/recycled (or exported/imported for this purpose), the most prevalent associated hazardous waste streams, and the possible presence of material-specific bans on certain transboundary movements.

Survey respondents documented annual hazardous waste generation rates of between 187,000 tonnes (Denmark) and 40,700,000 tons (U.S.A.). Ten respondents also estimated the portion of hazardous waste being recycled and/or recovered. These recovery rates ranged from a low of 10% (Italy) to a high of 87% (Denmark). Estimated quantities and associated levels of recycling/recovery, where available, are summarized in the following table:

Country	Hazardous Waste Generation	% Recycled/Recovered
Austria	0.76 M tonnes	47%*
Canada	5.9 M tonnes (1991)	
Czech Republic	6.16 M tonnes (avg. 1995-1998)	
Denmark	0.19 M tonnes	87%
Finland	0.5 M tonnes	40%**
France	5.0 M tonnes	32%
Germany	9.1 M tonnes (1993)	33%
Italy	3.6 M tonnes (1997)	10%
Netherlands	1.27 M tonnes	12%
Norway	0.65 M tonnes	20%
Poland	1.1 M tonnes (1998)	33%
Spain	3.4 M tonnes (1994)	
Switzerland	1 M tonnes (1998)	29 - 36%***
U.S.A.	37 M tonnes (1997)	
UK	4.8 M tonnes	

* 33% material recovery and 14% energy recovery

** 10% material recovery and 30% incinerated with/without energy recovery

***12% material recovery and 17-24% energy recovery

It was apparent from the responses that varying definitions of hazardous waste have been used. Switzerland for example, classifies hazardous wastes as 'special wastes', a category that also includes many additional types of wastes requiring some special form of collection, transport, storage and treatment. Switzerland also identified a category of 'other wastes' (e.g. electronics) which need a certain amount of control/ regulation but at a lower level of control as compared to 'special wastes'. 'Other wastes' have similar export regulatory requirements as 'special wastes'. Swiss figures provided in this survey were for the 'special wastes' category.

Denmark also noted that it used two different systems in reporting statistics in this survey. Their hazardous waste generation data follows EU/DK listing protocols while their waste import/ export data (discussed below) follows the OECD listing system. This means that the import/ export figures indicated in this report include all amber and red listed wastes including the non-hazardous amber list components.

Hazardous Wastes Exported for Recovery/Recycling

The majority of the countries surveyed reported that less than 10% of their hazardous waste destined for recovery or recycling is exported to other countries for this purpose. Those exporting the greatest portions of wastes were Denmark (50%) followed by Austria (25 to 50%) and then Germany (10 to 25%). Please refer to Table 1 for the full report of results.

In a paper presented at the Cancun workshop, Mexico noted that exporting industries that import materials under temporary permits and without paying duties (maquiladora industries) are obliged to return to the country of origin (mainly the U.S.A.) any hazardous wastes generated as a result of their activities and to report such movements.

As further illustrated on Table 1, commonly reported exports included emission control dust, ash contaminated by various metals, battery wastes, dross from smelters, scalings from iron and steel manufacturing, waste sludges, solvents, and spent catalysts. Seven countries (Australia, Czech Republic,

Korea, Netherlands, Norway, UK, U.S.A.) provided estimates of quantities by material exported for processing (see Table 1).

Hazardous Wastes Imported for Recovery/Recycling

As illustrated on Table 2, a wide range of values was reported relative to the importation of hazardous waste from other countries for recycling and/or recovery. As shown therein, three respondents noted that other countries contributed more than 50% of their total domestically processed waste quantities (Austria, Norway, Switzerland). Three indicated values between 10% and 25% (Denmark, France, Spain), five stated portions less than 10% and two countries (Italy, Poland) indicated that no such materials were imported (i.e. 0%). At the Cancun meeting, Mexico simply noted that the importation of hazardous wastes is only approved for its safe treatment, reuse or recycling, but not for final disposal or storage.

Commonly reported hazardous wastes imported for recycling/recovery included batteries, metal ashes and residues, sludges, aluminum slag, waste oil and hydrocarbon contaminated materials.

Six countries (Australia, Czech Republic, Korea, Netherlands, Norway, UK) provided estimates of quantities by material imported for processing, as illustrated on Table 2.

Material-Specific Bans

Only three surveyed countries identified the existence of material-specific bans. Canada has banned the export and import of PCBs, the UK has banned the import of asbestos wastes and Switzerland has banned the export of household batteries. In addition to these explicit bans, Austria has indirectly effected a ban on the import of halons and CFCs as these products are prohibited from being placed on the market after recovery operations.

Poland noted a total ban on all imported hazardous wastes. In a draft of their new *Act on Waste*, however, there is a provision which will make possible the import of selected hazardous wastes for recovery. This is expected to come into force in 2001.

A number of other countries indicated that they have banned exports to non-OECD countries (Finland, Netherlands, Switzerland, UK) or in accordance with the Basel Convention (Denmark). This may in fact be the case for other OECD countries but was not reported as this question was not explicitly asked in the survey.

Finland provided further details, identifying waste types that are included in their ban (Annex V of the EC Regulation 259/93 - contains Basel Convention Annex VIII wastes, plus OECD amber and red lists, but excluding some clearly non-hazardous wastes according to EC legislation, and Basel Convention Annex IX wastes). The Czech Republic noted the use of the OECD green, amber and red lists of wastes. Also, they stated that sixteen items on the green list are controlled in the amber tier.

3.2 Reasons Why Transboundary Exports or Imports are Presently Occurring

This section of the survey attempted to ascertain the reasons why transboundary exports or imports were presently taking place in each country. Various options were presented (e.g. lack of domestic processing facilities, regulatory differences, etc.) with space also allotted for other reasons not explicitly falling into one of the provided categories.

Exports

The number of countries indicating specific reasons behind current hazardous waste exports are shown below:

Lack of domestic processing facilities	15	Location (proximity to facilities in other country)	6
Regulatory differences	2	Presence of multi-national waste companies	3
Economics (processing costs)	11	Other (please explain):	

Most survey respondents, with the exception of France and Germany, indicated that exports are taking place because of a lack of domestic processing facilities. For example, the UK noted that specialized processes and facilities were available in other countries. Almost as many respondents also cited economics (processing costs) as another primary reason for export. Less than half of the respondents indicated that relative proximity to facilities in other countries leads to export and only two countries (Canada, Germany) noted the effect of regulatory differences. Three respondents (Austria, Canada, Finland) recognized the impact from the presence of multi-national waste companies.

While several countries cited multiple reasons as to why transboundary exports are occurring, some (Australia, Denmark, Norway, Poland, Spain) indicated these material flows were taking place only because of a lack of domestic facilities. The Netherlands noted the existence of material-specific circumstances (e.g., lack of domestic processing facilities for batteries and acids, and processing costs for ferrous/non-ferrous wastes).

As to other factors not identified in the survey, France suggested that exports occur to ensure competition while providing back-up processing capabilities in the event that something happens to a particular facility.

Imports

The number of responses received as to why current hazardous waste imports are taking place are indicated below:

Lack of foreign processing facilities	11	Location (proximity to facilities in your country)	4
Regulatory differences	2	Presence of multi-national waste companies	4
Economics (processing costs)	12	Other (please explain):	

As with material exports, the majority of the respondents indicated that they receive hazardous waste imports due to economic reasons. Almost as many respondents also cited the lack of foreign processing facilities. The UK for example, noted that specialized process and facilities may not be available to other countries. One-third of the respondents to this question indicated that the relative proximity of their country to others and/or the presence of multi-national companies leads to the occurrence of imports. Only two countries (Canada, Norway) identified the impact of regulatory differences.

Three countries (Australia, UK, U.S.A.) indicated that imports are occurring simply due to a lack of processing facilities in the exporting country. The Czech Republic, Finland and Spain also indicated only a single reason for imports taking place (economics). As with exports, the Netherlands noted the existence of material-specific circumstances (e.g., economies of scale for soil treatment). They also stated that ship waste is accepted according to obligations under MARPOL.

In addition to the reasons listed in the survey, Canada noted that recyclable material imports occur to provide an important source of raw materials and decrease the use of virgin resources.

3.3 Waste Stream and Environmental Focus for ESM

Two sections of the survey dealt with the focus for current ESM practices. As evident below, the first such section concerned the presence of supporting programs and legislation. The second section focused upon the specific environmental basis for these programs.

Supporting Programs and Legislation

The number of responses received concerning the existence of supporting programs and/or legislation are indicated below:

	YES	NO
Program/legislation in place to ensure ESM of exports	13	3
Program/legislation in place to ensure ESM of imports	14	2
Program/legislation in place to ensure ESM of domestic wastes	15	1
Have the standards/guidelines been tested in the courts	7	5

As illustrated above, the majority of respondents indicated that programs and/or legislation are in-place to ensure ESM for all three waste streams. Generally all responding countries indicated ESM coverage for domestic wastes. Norway noted that while ESM programs did not cover the export or import of hazardous wastes, all hazardous waste facilities have individual permits.

Italy noted ESM program coverage for domestic wastes only. The U.S.A. ensures ESM for hazardous waste imports and domestic waste but not for material exports.

Finland indicated that the general framework for ESM is set out by legislation dealing with waste and environmental protection and permitting. A number of regulations have been issued dealing with specific hazardous waste streams or operations. In addition, some general criteria to ensure the ESM of transfrontier movements were set out by EC Waste Shipment Regulations and national regulations. In practice, ESM is assessed on a case-by-case basis by the competent authorities.

Canada indicated that while no official federal ESM standards are in place, legislation regarding imports of hazardous wastes and domestic wastes involves provincial systems of approval for waste management (mostly disposal) facilities. Similarly, Australia noted that ESM for domestic wastes is under the control of state and territory jurisdictions, without direct federal involvement.

With respect to the question as to whether any of the noted programs/legislation are the same, Canada and the UK indicated similar initiatives for imports and domestic wastes, while Austria and Switzerland indicated that programs/legislation are the same for all three material streams. In Australia, exports and imports are controlled under their Hazardous Waste Act 1989.

Swiss legislation states that if recovery plants abroad are not comparable to Swiss national standards, exports are prohibited. Germany listed a variety of legislative measures that are common to more than one waste stream. For example, the EC-Waste Shipment Regulation in conjunction with the EC-Waste Framework Directive and the German Waste Movement Act are common to exports and imports and various components of their Federal Emission Control Act are common to both imports and domestic waste practices. Enforcement is handled by the individual states.

Seven countries noted that their ESM protocols had been tested in court (Canada, Czech Republic, France, Korea, Netherlands, UK, U.S.A.). With regards to the length of time that ESM standards have been in place, responses included: since 1975 (France, Germany); since 1976 (UK, U.S.A.); more than 10 years (Austria, Switzerland); 5 to 10 years (Netherlands); 8 years (Korea); 3.5 years (Australia); since 1997 (Italy); and, since 1998 (Czech Republic).

Switzerland's ordinance on movements of special wastes has been in force since 1987 (prescribes a license for disposal/recovery plants, based on relevant environment laws). Transboundary movements of hazardous wastes have also been controlled there since 1987. ESM for Canada's exports are governed by 1992 regulations which contain certain requirements (e.g., prior informed consent) stemming from the 1986 Canada-U.S.A. Agreement and the Basel Convention. With respect to ESM for waste imports and the handling of domestic wastes in Canada, some provincial facility licensing requirements have been in place for 20 years, others are more recent. Several other countries also noted applicable existing regulations and legislation.

Environmental Focus

The number of responses received regarding the environmental basis or focus for current supporting programs and/or legislation were as shown below:

Protection of human health	13	Effectiveness of recovery/waste minimization	10
Protection of the natural environment	12	Promotion of effective material recovery	10

Of the fourteen respondents to this section of the survey, all cited two or more environmental factors as areas of focus to their ESM programs/legislation. Seven countries identified all four factors as being important. Of the options provided in the survey, protection to human health was noted most often, followed closely by protection of the natural environment and then waste minimization and the promotion of material recovery. No additional environmental factors were identified.

Canada indicated that, in addition to the protection of human health and the natural environment, recent revisions to the *Canadian Environmental Protection Act* (CEPA) are expected to expand the focus to include the other two factors (i.e. effectiveness of recovery/waste minimization and the promotion of effective material recovery). Switzerland remarked that their waste hierarchy is strongly applied and that self-control of specific industry sectors is supported and promoted. At Cancun, the Netherlands also noted their governing principle oriented towards a waste hierarchy and suggested that environmental impact should be as low as reasonably achievable (i.e. costs proportional to the acquired benefits) with separate assessments for each waste stream.

3.4 Scope of ESM Program/Legislation

In an attempt to gauge the scope of relevant programs or legislation, three component sections of the survey were presented. As evident below, individual sections for exports, imports and, domestic waste practices were contained in the survey dealing with the scope of subject wastes as well as applicable management activities (e.g., transportation, processing, etc.).

Scope For Waste Exports

Responses received concerning the scope of ESM programs for material exports were as indicated below:

Applies to all hazardous wastes	10	OR Applies to material-specific hazardous wastes	4
Activities that apply to the scope of the ESM Program/Legislation:			
Transportation	11	Processing at receiving facility	12
Interim storage	9	Final disposal of residues (incineration/landfilling)	12

Ten countries indicated that the scope of ESM programs/legislation applied to all hazardous wastes, while four indicated that they were material specific. Austria’s programs were both material-specific and applicable to all hazardous wastes while three other countries (Czech Republic, Denmark, Korea) noted material-specific programs only.

Austria’s guidelines that are material-specific covered such wastes as refrigerators, asbestos, etc. At the same time, it was also recognized that transfrontier movements of wastes within the European Union must mutually recognize the environmental standards of the member states and shipments of hazardous waste outside the OECD are prohibited pursuant to the implementation of the Basel Convention’s ban amendment. Denmark’s material-specific ESM programs covered refrigerators, electronic scrap and cars (they further stated that exports to non-OECD countries were forbidden). The Czech Republic and Korea (also counted as having material-specific programs), indicated that they follow waste lists provided by the OECD. This may also be the case for other countries although it was not specifically indicated.

Nine countries indicated that all four activities noted in the survey were applicable to present programs/legislation (Australia, Austria, Canada, Czech Republic, Finland, France, Spain, Switzerland, UK). Germany's and the Netherlands’ initiatives applied to all but interim storage. Denmark indicated two applicable activities; processing and final disposal.

While likely the case for other countries as well, Norway specifically noted the implementation of EU shipment regulation (259/93) which requires a permit from the competent authority in the importing country prior to the granting of an export license.

Scope For Waste Imports

With regards to waste imports, responses received concerning the scope of ESM programs were as indicated below:

Applies to all hazardous wastes	11	OR Applies to material-specific hazardous wastes	6
Activities that apply to the scope of the ESM Program/Legislation:			
Transportation	12	Processing at receiving facility	14
Interim storage	13	Final disposal of residues (incineration/landfilling)	14

Eight countries (Australia, Finland, France, Germany, Netherlands, Spain, Switzerland, U.S.A.) noted that the scope of their ESM programs/legislation applied to all imports, while three (Austria, Canada, UK) had both types of program scopes in place. Three countries (Czech Republic, Denmark, Korea) had only material-specific programs.

Austria addresses all hazardous wastes through facility licensing standards and the requirement for state-of-the-art technologies for controlling emissions, etc. They also noted material-specific ESM guidelines as previously mentioned for waste exports. In Canada, some provincial permits were waste-specific (e.g., PCBs). While ESM rules apply to all hazardous wastes in the UK, certain wastes are additionally covered

by guidance contained in their Environment Technology Best practice program and through “good practice” guides. Denmark’s material-specific ESM program covers refrigerators, electronic scrap and cars. The Czech Republic’s and Korea’s material-specific programs follow waste lists provided by the OECD (as previously noted for waste exports, this may also be the case for other countries).

Twelve countries indicated that all four activities identified in the survey were covered by their programs/legislation (Australia, Austria, Canada, Czech Republic, Finland, France, Germany, Korea, Netherlands, Spain, UK, U.S.A). Switzerland's initiatives applied to all activities but transportation. Denmark indicated two applicable activities; processing and final disposal.

Scope For Domestic Wastes

Responses received concerning ESM program scopes for domestic waste were as shown below:

Applies to all hazardous wastes	11	OR Applies to material-specific hazardous wastes	7
Further to the above, check all activities that apply to the scope of the ESM Program/Legislation:			
Transportation	13	Processing at receiving facility	15
Interim storage	14	Final disposal of residues (incineration/landfilling)	16

With the exception of Australia, Korea, Italy and Poland, responses to this section were identical to those for waste imports. While ESM programs/legislation were not applicable to hazardous waste exports and imports in Italy, they were noted to apply to domestic wastes and be material-specific in nature (e.g., for inflammable wastes, batteries and medicines) although scoped toward the final disposal of residues only. For Korea, ESM programs/legislation applied to all domestic wastes, whereas for waste imports, they were material-specific (the reverse was true for Australia). The scopes of the programs, however, were the same. As previously stated, Poland currently does not permit waste imports.

As with waste imports for the UK, ESM rules applied to all domestic hazardous wastes, with specific materials covered by additional guidance from their Environment Technology Best practice program and “good practice” guides. In Australia, domestic wastes are controlled by individual states and territories with lists of wastes varying between these jurisdictions. The Czech Republic noted the use of the European Waste Catalogue with additional direction on hazardous waste identification provided by their Waste Management Act.

3.5 Approach Used in Formulating ESM Standards

Several different approaches are possible in setting ESM standards. As noted in this section of the survey, such standards might be design-based, performance-based, comparability-based or generic. Further, the actual type of standard employed might be influenced by waste types or quantities. This section of the survey attempted to address these issues and identify the consultative approach used in setting them in place.

With regards to the approach used in formulating ESM standards, as noted above, the survey provided four options:

- standards are **Design-based** (i.e. technical prescriptions set for the specific methods/processes employed);
- standards are **Performance-based** (i.e. objectives set but means to meet them are left open, for example the amount of recycled materials relative to residuals);

- standards are **Generic** (i.e. process to be followed is specified but not the level of performance required); and/or
- standards are **Comparability-based** (i.e. practices/standards in receiving country must be comparable to exporting country).

The following responses were received regarding the formulation of ESM standards:

	YES	NO
Standards are Design-based	8	3
Standards are Performance-based	10	2
Standards are Generic	1	9
Standards are Comparability-based	4	7
Type of standards dictated by type of waste?	5	5
Type of standards dictated by tonnage (quantities) involved?	4	7

The approach used in formulating ESM standards is performance-based only in the Netherlands, UK and France (i.e. not dictated by type or quantity of waste). The Czech Republic and Italy employ a design-based approach. Canada, Denmark and the U.S.A. were described as using both techniques. Several countries also noted a multi-faceted approach incorporating design, performance, and/or comparability based approaches in setting ESM standards (Australia, Austria, Germany, Switzerland).

Germany further utilizes generic-based standards in some situations. This was the only country to incorporate such an approach although Canada recognized that there may be some provincial examples of generic standards. Guidelines are available in this regard through the Canadian Council of Ministers of the Environment for certain waste streams (used oil, used tires, etc.).

Where performance-based standards were more fully described, they tended to be based on facility emission limits (Austria, Switzerland). The Netherlands stated that while certain technologies are generally set as standard, an operator is allowed to use other approaches if it can be proven that environmental performance is equal or better.

Often, the basis for the standards used are dictated by the type of waste (Austria, Czech Republic, Denmark, Germany). Several countries also noted the influence of waste quantities. For example, U.S.A. regulations distinguish between large (>1000 kg/month) and small (<100 kg/month) quantity generators.

One cautionary note to the preceding is that some of the input received may not be exclusively oriented towards ESM of recoverable wastes. Canada, the Czech Republic and U.S.A., for example, described (in part) approaches used for the landfilling and incineration of wastes.

Consultative Approach Used

With regards to the type of consultation that took place in the formulation of ESM standards, responses received were as indicated below:

	YES	NO
Internal discussions/analyses were relied upon	9	1
Dialogue/consultation with receiving countries was carried out	2	8
Industry consultation was undertaken	8	2

Ten countries completed this section of the survey (Australia, Austria, Canada, Czech Republic, Denmark, Germany, Italy, Switzerland, UK, U.S.A.). Generally all respondents made reference to internal discussions and industry consultation in the setting of their ESM standards. Other noted participants included environmental groups and/or non-governmental organizations (Canada, Denmark) and receiving countries (Czech Republic, UK). The Czech Republic further identified the undertaking of an environmental impact assessment (according to ISO standards) in the establishment of their ESM standards.

Italy's consultative approach was exclusively internally focused. Australia's approach in setting ESM standards involves an expert external body (Hazardous Waste Technical Group) appointed under their Hazardous Waste Act. With a mandate encompassing, in part, waste recovery and recycling, sound technical criteria have been and are being developed to enable import and export proposals to be assessed.

At Cancun, Mexico noted the role of public participation in the design and implementation of programs on hazardous waste minimization and management. A particular strategy being followed to increase and improve public participation on ESM in that country is the creation of inter-sectorial networks. The Mexican Network on Environmental Waste Management, for example, provides a mechanism for developing demonstration projects, identifying opportunities for waste minimization, promoting training and education in this field, etc.

3.6 Information Required from Receiving Facilities

In the evaluation of facilities intended to be subject to ESM, a wide range of information might be requested by regulatory authorities. Two sections of the survey, dealing with either foreign or domestic facilities, focused on current member-specific data requirements. As illustrated below, potential data needs were expected to encompass such issues as current licenses/permits, emissions data, facility capacity, liability insurance, and so on.

Information Required from Foreign Facilities taking Exported Wastes

Information needs from foreign-based facilities intended to receive material exports were as indicated below:

Present license/permit	11	Fate and means of disposal of by-products	6
Current emissions data	3*	% materials recycled relative to residuals produced	7*
Quantification of facility capacity	5*	History of facility use	1*
Demonstration of financial strength		Emergency response plans	1*
Documented liability insurance	3	Proof of ISO certification	
Present monitoring programs	2*	History of past regulatory issues	2*
Waste processing procedures	9*	Proof of adequate record keeping	3*
Qualities of products/process outputs	8*	Staff training procedures	1*
Nature of by-products produced	6*	Demonstration of Best Available Technology, etc.	1

As apparent from the preceding, where information requirements from foreign-based receiving facilities were noted by the respondents, several parameters were commonly solicited. These included: present facility license; incorporated waste processing procedures; descriptions of process outputs and the nature of by-products produced; the means of by-product disposal; and, the percentage of materials recycled relative to the residuals produced. Facility capacity was the next most common requirement. Such comprehensive

information requirements were generally noted for Australia, Austria, Finland, France, Germany, Korea, Switzerland, and the UK.

For Australia, some information requirements are applied judiciously for OECD member states (as denoted by an asterisk * on the preceding table). All of that country's mandated requirements are, however, stipulated for non-OECD countries. For Canada, which exports only to the U.S.A., facility checks are undertaken solely for previously unknown facilities.

No respondents identified the need for information on financial strength or for proof of ISO certification. Denmark stated that any receiving facility has to document that ESM standards laid down in Danish legislation are respected.

Norway stated that, while an ESM program does not exist, export is forbidden to non-OECD countries. Finland noted that as most of the wastes are exported to other EU member states, and since the same waste directives are applied in all such jurisdictions, the responsibility for ensuring ESM at the receiving facility is normally left to the authorities of the importing country. In a similar vein, Poland noted that their main verification procedure is comprised of obtaining written consent from the receiving country.

At the Cancun meeting, Mexico stated that for exports, it was considered obligatory to obtain the consent of the authorities in the importing countries and to comply with the rules established in the international agreements or conventions signed by Mexico concerning transboundary movements of hazardous wastes.

Information Required from Local Facilities taking Imported or Domestic Wastes

Information required of local facilities receiving domestic or imported materials were as indicated below:

Present license/permit	16	Fate and means of disposal of by-products	13
Current emissions data	9	% materials recycled relative to residuals produced	11
Quantification of facility capacity	12	History of facility use	4
Demonstration of financial strength	8	Emergency response plans	6
Documented liability insurance	9	Proof of ISO certification	
Present monitoring programs	9	History of past regulatory issues	4
Waste processing procedures	13	Proof of adequate record keeping	6
Qualities of products/process outputs	13	Staff training procedures	5
Nature of by-products produced	9	Demonstration of Best Available Technology, etc.	6

As apparent from the preceding table, more extensive information requirements are generally in place for local receiving facilities handling domestic or imported wastes. Most jurisdictions required appropriate licenses/permits, information on the quality of products or process outputs as well as information on facility capacity, waste processing procedures, by-product disposal and, portions recycled. The UK and U.S.A. had probably the most stringent requirements for this aspect of ESM with all information issues needing to be addressed except emissions data (UK) and ISO certification (both countries).

Other general exceptions noted were facility history and history of past regulatory issues. Canada noted that some information requirements (i.e. demonstration of financial strength and best available technology) also needed to be demonstrated for certain member provinces.

Finland also described permitting requirements on a local or regional basis, except in relation to transfrontier movements which are centralized in their control by the Finnish Environment Institute. In this latter situation, notifications on transfrontier movements are sent to local authorities for information; these authorities then check whether the proposed movements are in accordance with granted permits.

As with material exports, Denmark stated that any receiving facility has to document that ESM standards laid down in Danish legislation are respected.

3.7 Auditing of Processing Facilities

In the administration of ESM programs, some form of auditing will be necessary to ascertain compliance with established standards. These sections of the survey attempted to gather related information for either foreign or domestic processing facilities. Two alternative approaches with respect to facility auditing were offered in the survey:

- **Self Declaration** possible (i.e. receiving facility itself verifies/declares that standards are being met); and/or
- **Independent verification** required (i.e. another party verifies/certifies standards being met).

Further, with regards to the type of auditing procedures employed, the survey asked whether:

- Auditing procedures are **material-specific** (i.e. frequency dependent on material types);
- Auditing procedures are **industry-specific** (i.e. specific industries targeted); and/or
- Auditing procedures are **country-specific** (i.e. dependent on receiving country).

Foreign Processing Facilities

Respondent input concerning conformity assessment requirements related to facilities involved in waste export activities were as follows:

	YES	NO
Self Declaration possible	4	3
Independent verification required	4	2
Auditing procedures are material-specific	2	4
Auditing procedures are industry-specific	1	5
Auditing procedures are country-specific	2	3
If country-specific, are risk profiles employed	1	3

As apparent from the above summary, procedures for the auditing of foreign processing facilities are not in place in most countries (Canada, Czech Republic, France, Italy, Netherlands, Norway, Spain, UK, U.S.A.). With respect to Canada, this issue was qualified by noting that all exports are currently destined for the United States and most of the receiving facilities there are known to Environment Canada. When this is not the case, the Canadian exporter may be asked for further information about the facility, or checks initiated by Environment Canada may be conducted.

Auditing procedures are used on a voluntary basis in Finland, and are not part of the normal administrative permitting procedures. Self declaration protocols were described for Denmark, Korea, Poland and Switzerland. For Switzerland, self declaration procedures are backed up by independent verification in specific cases. Potential conflicts of interest are dealt with either in this manner or through direct discussions with the facility and the exporter/notifier.

For Australia, only independent verification procedures were identified with auditing protocols dependent upon the receiving country. Risk profiles are employed. Germany stated that EC Waste Shipment Regulations in conjunction with the EC Waste Framework Directive are applied in these situations.

Austria stated that normally a new assessment of ESM is carried out within the scope of a new notification, on average every 6-12 months. While independent verification is required, auditing procedures are industry-specific.

Domestic (Local) Processing Facilities

Input regarding conformity assessment requirements related to facilities involved in domestic and waste import activities were as follows:

	YES	NO
Self Declaration possible	5	2
Independent verification required	7	1
Auditing procedures are material-specific	5	0
Auditing procedures are industry-specific	6	0
Are risk profiles employed?		

As compared to procedures followed for foreign facilities, auditing protocols for local operations receiving domestic and/or imported wastes are far more established.

In some countries, auditing of domestic facilities is left to local regional authorities (Australia, Canada, Denmark, Spain). Switzerland also leaves responsibilities for licensing to local cantonal authorities, but based on Swiss federal law. The U.S.A. simply noted that inspection frequencies are left to the discretion of the state or region.

Several countries employed multiple auditing approaches. Both self declaration as well as independent verification processes are utilized in France, Switzerland and, the UK. In Austria, Czech Republic and Germany, only independent verification procedures were permitted. The U.S.A. respondent simply noted that independent laboratories were employed to process waste sampling data. In Australia, audit approaches are dictated by individual states and territories. As for foreign processing facilities, auditing procedures are used on a voluntary basis in Finland, and are not part of normal administrative permitting procedures.

Further to the above, specific auditing procedures followed were stated as being dictated by the materials received and/or industries serviced in Canada, Czech Republic, Germany, Switzerland, UK and, U.S.A. Austria's programs were identified as being exclusively industry-specific. Both Switzerland and the UK utilized some degree of risk assessment (relative to waste or industry types, etc.) in the application of their auditing programs.

Audit frequencies were noted as: on average every 6-12 months (Austria); approximately every 5 years (UK); at least every 5 years (Switzerland); approximately every 10 years for crucial operations such as incineration (Netherlands); and, periodically at the discretion of a state or region (U.S.A.). Audit frequency was occasionally tied to the frequency for facility certification.

3.8 Other Issues Related to ESM Program Implementation

Several other issues related to ESM program implementation were also canvassed during survey activities. As evident below, these included such subjects as continuous improvement, financial penalties, etc. Received input was follows:

	YES	NO
In your opinion is the ESM program a success	8	0
Was a formal evaluation done on the ESM program	0	9
Are processes in place to ensure continuous improvement of ESM system	9	2
Is a financial penalty structure is in place for non-compliance	10	1
Instances of past corrective action have been required	3	3

As indicated above, while most felt that their ESM programs were successful, none of the respondents identified that a formal evaluation had been carried out. Italy questioned their experience to assess ESM activities.

In-place programs to ensure continuous improvement were identified for Australia, Austria, Czech Republic, France, Germany, Netherlands, Switzerland, UK (through IPPC and other systems) and, U.S.A. No specific areas for improvement were documented although some noted the need for improvement. Penalty structures (criminal charges, etc.) were also established in most of the responding countries with some of these related actions administered through local authorities.

Examples of past corrective actions taken (for Canada) included fines, facility shut-downs and clean-up or remedial action requirements. They further note that the revised Canadian Environmental Protection Act (came into force March 31, 2000) contains the authority to develop, by regulations, criteria for ESM. The Netherlands also pointed to the past imposition of penalties for non-compliant, illegal imports.

3.9 Desired Future Actions From OECD and Other Suggested Information Sources

In an attempt to assist future study and analyses, member countries were asked about desired future actions on the part of the OECD as well as for the identification of other information sources.

Protocols/Practices

As previously noted in Section 1, the current workplan of the OECD WGWMP is focused, in part, on the identification of steps to define ESM in member countries. Building upon the 1999 workshop (Cancun) and the results of the current survey with regards to member country ESM experience, questions are to be developed for use when considering exports. Supportive actions are also underway in several countries. Respondents completing this portion of the survey appeared to welcome and support these initiatives towards a more harmonized approach for, and understanding of, ESM within the OECD.

Further areas of attention identified by respondents included:

- closed-loop recycling (Canada);
- extended producer responsibility (Canada, Switzerland);
- waste hierarchy, waste prevention, minimization, recovery and disposal (Switzerland);
- distinguishing waste from non-waste and recovery from final disposal (Czech Republic);

- appropriate check-lists for authorities to be used for transfrontier shipments of specific problematic/hazardous waste streams (Austria); and,
- critical assessment (criteria for differentiation) for certain material streams (Austria).

Other Suggested Contacts/Information Sources

Several additional sources of information were identified by survey respondents. These are indicated below. Given the tight schedule for the current work program, these sources could not be followed up at this time.

- ◆ **Australia** – suggested contact be made with the Hazardous Waste Technical Group. Several web-sites further referenced: www.environment.gov.au/epg/hwa.html ; www.environment.gov.au/epg/env_sust.html ; www.act.gov.au/environ/ ; www.epa.nsw.gov.au ; www.lpe.nt.gov.au/home.htm ; www.env.qld.gov.au/ ; www.denr.sa.gov.au/ ; www.dpiwe.tas.gov.au/ ; www.epa.vic.gov.au ; www.environ.wa.gov.au/DEP/. Also, the review of “*Information Paper No. 6: Assessment of Environmentally Sound Management of Hazardous Waste Destined for Recovery Operations in Non-OECD Countries*” was suggested
- ◆ **Austria** – suggested contact be made with the Umweltbundesamt (Environmental Agency), also reference to web site of the Austrian Ministry of Environment (www.bmu.gv.at) for their Federal Waste Management Plan as well as the web-site for Umwelt (environment) at www.ubavie.gv.at
- ◆ **Canada** – suggested reference to Environment Canada Transboundary Movement Division website (www.ec.gc.ca/tmd/tmdhp.htm). For province-specific information, contacts are also available through the CCME website at <http://www.ccme.ca/index.html>. Also reference suggested to a report prepared for Environment Canada entitled “*Environmentally Sound Management of Hazardous Waste Disposal and Recycling Facilities : Criteria Development and Implementation Strategy*”, 1997
- ◆ **Czech Republic** – suggested contact be made with Czech Environmental Inspection and Czech Environmental Institute. Useful web pages include those for the Ministry of Environment (www.env.cz) and the Environmental Institute (www.ceu.cz). Published documents and reports referenced included: “*Statistical Environmental Yearbook of the Czech Republic*”; “*Report on the Environment in the Czech Republic*”; “*State Environmental Policy of the Czech Republic*”; and, “*OECD Environmental Performance Review – Czech Republic*”
- ◆ **Denmark** – suggested reference to web-site at www.mst.dk/forside/
- ◆ **Finland** – suggested reference to web-site of the Finnish environmental administration at www.vyh.fi
- ◆ **Germany** – reference to technical papers on avoidance and recovery of hazardous waste, UBA-Texte 75/96 and Report No.: UBA-FB 99-112: “*The specialised waste management company - experiences with qualifying of waste management companies in a system of individual responsibility and own control*”, UBA-Texte 63/99 (both available only in German language)
- ◆ **Netherlands** – published reports/documents recommended for review included Chapter 10 (Waste) of the Environmental Management Act as well as the “*Multi-Year Plan on Hazardous Waste*”

- ◆ **Poland** – suggested contact be made with Department of Environmental Protection, Ministry of Environment and, Unit of Transboundary Movement of Waste, Inspectorate of Environmental Protection
- ◆ **Switzerland** – suggested reference to homepage of the Waste Division SAEFL at www.admin.ch/buwal/abfall/e/index.htm
- ◆ **UK** – suggested reference to web-site of UK Environment Agency at www.environment-agency.gov.uk, also to DETR web-site at www.detr.gov.uk
- ◆ **U.S.A.** – suggested reference to Environmental Protection Agency web-site at www.epa.gov. Also reference to 40 CFR Parts 260-282 Regulations for the Protection of the Environment: Resource Conservation and Recovery Act.

3.10 Management of Non-Hazardous Wastes

Further to the previous sections of the survey dealing with hazardous wastes, comments were also solicited on associated protocols for non-hazardous wastes.

Virtually all respondents noted the existence of programs and legislation (regulations, guidelines, etc.) to control the management of non-hazardous wastes. Korea was the only country to not provide a response to this aspect of the survey. While in some cases the program scopes were noted to be similar to that described previously for hazardous wastes, certain respondents did not consider these to be equivalent to a formal ESM program.

Further, where protocols were described as ‘ESM’, they were occasionally restricted to specific material streams. Austria, for example, is in the process of amending their Federal Waste Management Plan to provide ESM guidelines for the recovery of some non-hazardous waste streams such as wood and demolition wastes. Denmark was noted to have ESM programs and legislation in place for soil and inorganic residues.

Non-hazardous waste program components were identified by some respondents. Where specifically noted, they are repeated below. This list should not be considered as a comprehensive representation of member country activities. It is known, for example, that more extensive protocols are in place in some jurisdictions. Identified program activities were as follows:

- definition of recoverable wastes, technology and standards for produced secondary materials (Italy);
- national cleaner production projects in concert with industry (Australia);
- web-based network of databases on environment management technologies and expertise (Canada, Australia);
- special ordinances to promote the recycling of: packaging waste (Finland, Germany); electronic appliances and beverage containers (Switzerland); end-of-life vehicles and batteries (Germany); and, waste paper, discarded tires and construction and demolition wastes (Finland);
- environmentally labelling (Germany);
- voluntary agreements, such as for demolition waste or graphic papers (Germany);
- registration of waste carriers (UK);
- development/implementation of requirements for waste reduction plans prior to granting of export permits (Canada);

- enforcement of waste hierarchy: 1)prevention, 2)recycling, 3)recovery, 4)incineration/energy recovery, and then 5)final disposal (Netherlands);
- web-based monitoring mechanisms for national and state waste minimization policies (Australia); and
- system or facility permitting and environmental control (Canada, Finland, Germany, UK).

As with various aspects of the hazardous waste ESM program components, certain countries noted that management responsibilities for non-hazardous waste are left to local regions, states, territories or provinces. These countries included Australia (for ESM programs and legislation), Austria (e.g. standards for compost quality) and, Canada (e.g. certification of recycling operations).

Again, given the short schedule for this project, the identified information sources could not be followed up at this time.

4.0 COMMON PROGRAM ELEMENTS

As identified in Section 3, while a wide variety of practices and procedures currently exist with regards to country-specific ESM programs, certain components were generally found to be common to most reporting jurisdictions. These common elements are identified below to assist the OECD in establishing a baseline position in regards to adequate ESM infrastructures. This information may further be of use to member countries seeking to improve existing programs.

Material-Specific Bans: most countries have no material-specific bans in place

Waste Stream Focus: ESM programs/legislation generally exist for hazardous waste exports and imports as well as domestic wastes

Environmental Focus: the environmental basis for ESM programs/legislation typically included protection of human health, effectiveness of recovery/waste minimization, protection of the natural environment, and promotion of effective material recovery

Scope of ESM Program/Legislation: most countries indicated that programs/legislation applied to all exported/imported/domestic hazardous wastes (in some situations these programs were also supplemented by material-specific initiatives). Further, the scope of activities covered included transportation, interim storage, processing at the receiving facility and the final disposal of residues

Basis for ESM Standards: most countries utilize either design-based and/or performance-based standards

Consultative Approach Used: generally, consultation undertaken to establish ESM standards encompassed internal discussions and analyses as well as industry dialogue

Information Required from Receiving Facilities:

Foreign Facilities: most respondents identified the following information requirements from facilities receiving material exports:

license/permit	% materials recycled relative to residuals produced
waste processing procedures	qualities of products/process outputs

Domestic Facilities: generally the following information was required from local facilities receiving imported or domestic waste:

license/permit	quantification of facility capacity
current emissions data	demonstration of financial strength
present monitoring programs	qualities of products/process outputs
waste processing procedures	fate and means of disposal of by-products
nature of by-products produced	% materials recycled relative to residuals produced
documented liability insurance	

Auditing Procedures: procedures for auditing foreign processing facilities are not in place in most countries. Auditing protocols for domestic operations generally encompass independent verification and, to a slightly lesser extent, self declaration

Other Issues: most countries noted processes in place to ensure continuous improvement of their ESM system. Further, penalty structures have commonly been established for non-compliance

Management of Non-Hazardous Wastes: virtually all respondents noted the existence of programs and legislation to control the management of non-hazardous wastes.

5.0 SUMMARY AND CONCLUSIONS

This report involved a review of environmentally sound management (ESM) practices, primarily as related to hazardous recoverable wastes. A total of 17 countries participated in this study's survey work. Responses were obtained from three different continents including Europe (Austria, Czech Republic, Denmark, Finland, France, Germany, Italy, Netherlands, Norway, Poland, Spain, Switzerland, UK), North America (Canada, U.S.A.) and Asia (Australia, Korea).

On average, responding countries annually generated almost 5.4 million tonnes of hazardous wastes. This amount decreases to slightly more than 3 million tonnes/year after excluding the influence of the high reported quantities from U.S.A. Of these amounts approximately 22% was recycled or recovered, excluding both reported portions incinerated as well as Denmark's high figure of 87% (average increased to about 28% after including data from Denmark).

While many countries reportedly export less than 10% of their hazardous wastes for recovery and/or recycling, the average value exported for this purpose was approximately 11% (value assumes a median % value from each range reported with a value of 5% assigned for those countries reporting <10% exported). The most common hazardous wastes exported for recycling/recovery were: emission control dust; ash contaminated by various metals; battery wastes; dross from smelters; scalings from iron and steel manufacturing; waste sludges; solvents; and, spent catalysts.

Materials handled in domestic recovery/recycling facilities averaged 23% imported waste (again using assumed median values, as above). The most common such wastes imported for recycling/recovery included: batteries; metal ashes and residues; sludges; aluminum slag; waste oil; and, hydrocarbon contaminated materials.

The most prevalent reasons given for the occurrence of material exports and imports were: a lack of domestic processing facilities (for exports) or foreign facilities (for imports); and, economics.

The responses received demonstrate that there is not a universal approach to practices related to the ESM of hazardous wastes destined for recovery operations. While this has led to a variety of adopted approaches, some common elements are apparent (as noted in Section 4). More universal program structures may be of benefit to member countries.

Further, follow-up evaluations may also be of benefit with regards to the additional information sources provided by respondents as well as with respect to the issue of non-hazardous waste materials management.

APPENDIX A

OECD SURVEY OF ENVIRONMENTALLY SOUND MANAGEMENT (ESM) PRACTICES AS RELATED TO RECOVERABLE WASTES

SURVEY FORM

CONTACT INFORMATION	
Name:	Title:
Country:	Organization:
Address:	
Telephone:	Fax:
E-Mail:	

HAZARDOUS WASTES: GENERATION AND MANAGEMENT	
Average hazardous waste generation in one year (tonnes)	
Percent of yearly hazardous waste generation that is being recovered/recycled	
Percent of yearly hazardous waste generation exported to other countries for recovery/recycling (check most appropriate category)	
0% less than 10%	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
10% to 25%	25% to 50 % <input type="checkbox"/> 50% to 100% <input type="checkbox"/>
Most prevalent hazardous waste recyclable streams being exported (check: tonnes <input type="checkbox"/> or monetary value <input type="checkbox"/>)	
1.	
2.	
3.	
4.	
5.	

Percent of hazardous wastes recycled/recovered at domestic facilities that is imported (check most appropriate category) _____
--

0% less than 10%	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	25% to 50 % 50% to 100%	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Most prevalent hazardous waste recyclable streams being imported (check: tonnes <input type="checkbox"/> or monetary value <input type="checkbox"/>			
1.			
2.			
3.			
4.			
5.			
Are material-specific export/import bans in place for hazardous waste recyclable streams and if so, for what materials:			

REASONS WHY TRANSBOUNDARY EXPORTS ARE PRESENTLY OCCURRING (check all that apply)			
Lack of local (i.e. domestic) processing facilities		Location (proximity to facilities in another country)	
Regulatory differences		Presence of multi-national waste companies	
Economics (processing costs)			
Other (please explain):			

REASONS WHY TRANSBOUNDARY IMPORTS ARE PRESENTLY OCCURRING (check all that apply)			
Lack of foreign processing facilities		Location (proximity to facilities in your country)	
Regulatory differences		Presence of multi-national waste companies	
Economics (processing costs)			
Other (please explain):			

WASTE STREAM FOCUS FOR ENVIRONMENTALLY SOUND MANAGEMENT (ESM)		yes/ no
Program/legislation in place to ensure ESM of exports		
Program/legislation in place to ensure ESM of imports		
Program/legislation in place to ensure ESM of domestic wastes		
Are any of the preceding programs/legislation the same. Please explain:		
Have the standards/guidelines relevant to the program/legislation been tested in the courts		

How long have ESM standards been in place (years)

ENVIRONMENTAL FOCUS FOR ESM PROGRAM/LEGISLATION			
(check all that apply)			
Protection of human health		Effectiveness of recovery/waste minimization	
Protection of the Natural Environment		Promotion of effective material recovery	
Other (please explain):			

SCOPE OF THE ESM PROGRAM/LEGISLATION FOR WASTE EXPORTS			
(check the most appropriate of the following)			
Applies to all hazardous wastes		OR Applies to material-specific hazardous wastes	
If Material-specific hazardous wastes, list waste streams:			
Further to the above, check all activities that apply to the scope of the ESM Program/Legislation:			
Transportation		Processing at receiving facility	
Interim storage		Final disposal of residues (incineration/landfilling)	

SCOPE OF THE ESM PROGRAM/LEGISLATION FOR WASTE IMPORTS			
(check the most appropriate of the following)			
Applies to all hazardous wastes		OR Applies to material-specific hazardous wastes	
If Material-specific hazardous wastes, list waste streams:			
Further to the above, check all activities that apply to the scope of the ESM Program/Legislation:			
Transportation		Processing at receiving facility	
Interim storage		Final disposal of residues (incineration/landfilling)	

SCOPE OF THE ESM PROGRAM/LEGISLATION FOR DOMESTIC WASTES			
(check the most appropriate of the following)			
Applies to all hazardous wastes		OR Applies to material-specific hazardous wastes	
If Material-specific hazardous wastes, list waste streams:			
Further to the above, check all activities that apply to the scope of the ESM Program/Legislation:			
Transportation		Processing at receiving facility	

Interim storage		Final disposal of residues (incineration/landfilling)	
-----------------	--	--	--

APPROACH USED IN FORMULATION OF ESM STANDARDS	yes/ no
Standards are Design-based (i.e. technical prescriptions set for the specific methods/processes employed)	
Standards are Performance-based (i.e. objectives set but means to meet them left open, e.g. amount of recycled material relative to residuals)	
Standards are Generic (i.e. specify a process to be followed not level of performance required)	
Standards are Comparability-based (i.e. practices/standards in receiving country must be comparable to your country)	
For any of the preceding, type of standards dictated by type of waste?	
Please explain:	
For any of the preceding, type of standards dictated by tonnage (quantities) involved?	
Please explain:	

CONSULTATIVE APPROACH USED TO ESTABLISH ESM STANDARDS	yes/ no
Internal discussions/analyses were relied upon	
Dialogue/consultation with receiving countries was carried out	
Industry consultation was undertaken	
Other (explain):	

FOR WASTE EXPORTS, INFORMATION REQUIRED FROM RECEIVING (FOREIGN) FACILITY (check all that apply)	
Present license/permit	
Current emissions data	
Quantification of facility capacity	
Demonstration of financial strength	
Documented liability insurance	
Present monitoring programs	
Waste processing procedures	

Fate and means of disposal of by-products	
% materials recycled relative to residuals produced	
History of facility use	
Emergency response plans	
Proof of ISO certification	
History of past regulatory issues	
Proof of adequate record keeping	
Staff training procedures	

Qualities of products/process outputs		Demonstration of Best Available Technology, etc.	
Nature of by-products produced			
FOR IMPORTS & DOMESTIC WASTES INFORMATION REQUIRED FROM RECEIVING (LOCAL) FACILITY (check all that apply)		Fate and means of disposal of by-products	
	Present license/permit	% materials recycled relative to residuals produced	
	Current emissions data	History of facility use	
	Quantification of facility capacity	Emergency response plans	
	Demonstration of financial strength	Proof of ISO certification	
	Documented liability insurance	History of past regulatory issues	
	Present monitoring programs	Proof of adequate record keeping	
	Waste processing procedures	Staff training procedures	
	Qualities of products/process outputs	Demonstration of Best Available Technology, etc.	
Nature of by-products produced			

AUDITING OF FOREIGN PROCESSING FACILITIES (conformity assessment requirements related to waste export activities)	yes/ no
Frequency of audits of receiving plants required	
Self Declaration possible (i.e. receiving facility itself verifies/declares that standard being met)	
Independent verification required (i.e. another party verifies/certifies that standard being met)	

Auditing procedures are material-specific (i.e. frequency dependent on material types)	
Auditing procedures are industry-specific (i.e. specific industries targeted)	
Auditing procedures are country-specific (i.e. dependent on receiving country)	
If auditing procedures are country-specific are risk profiles employed	
Explanatory notes:	
If Self Declaration used, how are potential conflicts of interest dealt with:	

AUDITING OF DOMESTIC (LOCAL) PROCESSING FACILITIES (conformity assessment requirements related to domestic & waste import activities)	yes/ no
Frequency of audits of receiving plants required	

Self Declaration possible (i.e. receiving facility itself verifies/declares that standard being met)	
Independent verification required (i.e. another party verifies/certifies that standard being met)	
Auditing procedures are material-specific (i.e. frequency dependent on material types)	
Auditing procedures are industry-specific (i.e. specific industries targeted)	
Auditing procedures are country-specific (i.e. dependent on receiving country)	
If auditing procedures are country-specific are risk profiles employed	
Explanatory notes:	
If Self Declaration used, how are potential conflicts of interest dealt with:	

OTHER ISSUES RELATED TO ESM PROGRAM IMPLEMENTATION	yes /no
In your opinion is the ESM program a success	
If not, what would you improve:	

Was a formal evaluation done on the ESM program	
If yes, where are results available:	
Are processes in place to ensure continuous improvement of ESM system	
Is a financial penalty structure is in place for non-compliance	
Instances of past corrective action have been required	
Past examples of corrective action taken:	

DESIRED FUTURE ACTIONS FROM OECD IN REGARD TO ESM PROTOCOLS/PRACTICES
Any related comments can be noted here:

OTHER SUGGESTED CONTACTS/INFORMATION SOURCES
Other relevant and knowledgeable contacts to be surveyed
Addresses of useful Web Pages (for current standards, etc.)
Published documents/reports recommended for review

MANAGEMENT OF <u>NON-HAZARDOUS</u> WASTES
Are ESM programs/legislation in place for <u>non-hazardous</u> wastes and, if so, how do the issues and practices compare with the preceding:

FORM RETURN AND/OR RELATED QUERIES

In the interests of time, completed forms should be faxed back as below. Any related questions regarding the survey may also be faxed (although e-mail preferred) to the attention of:

Jonathan Read, P.Eng., MBA
SNC-LAVALIN Engineers & Constructors
2200 Lake Shore Blvd. West
Toronto, Ontario
Canada M8V 1A4
Fax: (416) 231-5356
Telephone (416) 252-5311
e-mail: readj@snc-lavalin.com

Ottawa, Ontario
K1A 0H3

February 22, 2000

To: Distribution List (attached)

Re: Experience of OECD Member Countries with Environmentally Sound Management (ESM)

Environment Canada, on behalf of the OECD Working Group on Waste Management Policy (WGWMP), is currently undertaking a survey of OECD member country practices as related to the environmentally sound management (ESM) of wastes destined for recovery operations.

As recognized during the October 1999 workshop in Cancun, Mexico, the understanding of scope and content of ESM varies greatly amongst member countries. It was agreed at the time of the workshop that the concept of ESM needed further clarification at the international, national and facility levels. In general, a need was identified for member countries to be able to ensure that they have the proper infrastructure for ESM, and to access a procedure that assesses ESM when considering an export.

Workshop recommendations included the collection of country-specific ESM experience at the national level, in order to provide a framework for implementing or improving associated practices. To this end, a survey form has been prepared for your input.

As apparent from the attached survey, its focus is on hazardous waste management programs/legislation as related to exports, imports, as well as domestic (in-country) waste streams. Space is also provided at the end of the survey to note associated issues for non-hazardous waste streams.

Le 22 février, 2000

À: Liste de distribution (ci-jointe)

Sujet: Expérience des pays membres de l'OCDE en ce qui concerne la gestion écologiquement rationnelle (GER)

Environnement Canada, de la part du Groupe de travail sur les politiques de gestion des déchets (GTPGD) de l'OCDE, fait un sondage des pays membres de l'OCDE sur les pratiques liées à la gestion écologiquement rationnelle (GER) des déchets destinés au recyclage.

Durant les ateliers qui ont eu lieu à Cancun au Mexique en octobre 1999, il a été reconnu que la compréhension de l'étendue et de l'application de la GER varie énormément entre les pays membres. Il a été entendu durant les ateliers que le concept de la GER doit être clarifié tant au niveau international qu'au niveau national ainsi qu'aux installations. En général, les pays membres ont identifiés un besoin d'être capable de s'assurer qu'ils ont une infrastructure pour la GER et aussi qu'ils ont accès à une procédure pour évaluer la GER quand ils considèrent d'exporter des déchets.

Les recommandations de l'atelier comprenaient le rassemblement des expériences acquises au niveau national (spécifique à chaque pays) pour former un outil de travail pour la réalisation ou l'amélioration des pratiques associées à la GER. À cette fin, un questionnaire a été préparé pour obtenir des commentaires sur vos expériences.

Le questionnaire est axé sur la gestion des déchets dangereux par rapport à l'exportation, l'importation et aussi pour la gestion des

The survey is being distributed at this time in the hope that you can complete and return the form by March 10, 2000. Completed forms should be directed back to the attention of Jonathan Read, SNC-Lavalin, as referenced at the end of the survey. Any related questions may also be directed to Mr. Read as noted therein.

Please be informed that the survey is available in French upon request.

We thank you in advance for your prompt attention to this matter.

Yours sincerely,

déchets domestiques. Un espace vierge à la fin du questionnaire est disponible pour noter toutes informations sur la GER des classes de déchets non-dangereux.

Le questionnaire vous est présentement distribué en espérant que vous puissiez le compléter et le retourner au plus tard le 10 mars, 2000. Les formulaires devraient être envoyé à l'attention de M. Jonathan Read, de SNC-Lavalin. Ses coordonnées se trouvent à la fin du questionnaire. Toutes questions concernant ce questionnaire peuvent aussi être adressées à M. Read.

Veillez noter que le questionnaire est aussi disponible en français sur demande.

Nous vous remercions à l'avance pour votre participation.

Veillez agréer l'expression de nos sentiments distingués.

John Myslicki, P.Eng.
Chief / Chef
Transboundary Movement Division/
Division des mouvements transfrontières
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