



**Conference of the Parties to the Basel Convention
on the Control of Transboundary Movements of
Hazardous Wastes and Their Disposal**

Eleventh meeting

Geneva, 28 April–10 May 2013

Agenda item 4 (a) (i)

**Matters related to the implementation of the Convention:
strategic issues: follow-up to the Indonesian-Swiss
country-led initiative to improve the effectiveness of the
Basel Convention**

**Follow-up to the Indonesian-Swiss country-led initiative to
improve the effectiveness of the Basel Convention**

**Framework for the environmentally sound management of hazardous wastes
and other wastes**

Note by the Secretariat

At its eleventh meeting, the Conference of the Parties to the Basel Convention adopted, as amended, in decision BC-11/1 on the follow-up to the Indonesian-Swiss country-led initiative to improve the effectiveness of the Basel Convention, the framework for the environmentally sound management of hazardous wastes and other wastes on the basis of the draft framework contained in document UNEP/CHW.11/3/Add.1, which was developed by the technical expert group. The text of the final version of the framework is set out in the annex to the present addendum.

Annex

Framework for the environmentally sound management of hazardous wastes and other wastes

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Glossary

BAT	Best available techniques
BEP	Best environmental practices
EMAS	Eco-Management and Audit Scheme
EMS	Environmental management system
EPR	Extended producer responsibility
ESM	Environmentally sound management
GHS	Globally Harmonized System of Classification and Labelling of Chemicals
ILO	International Labour Organization
IMPEL	European Union Network for the Implementation and Enforcement of Environmental Law
INECE	International Network for Environmental Compliance and Enforcement
INTERPOL	International Criminal Police Organization
ISO	International Organization for Standardization
OECD	Organization for Economic Cooperation and Development
OSH	Occupational safety and health
OHSAS	Occupational Health and Safety Assessment Series
PIC	Prior informed consent
TEG	Technical expert group
UNEP	United Nations Environment Programme

Definitions

“Applicable” environmental management system: 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 operation of the facility 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 systems 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 EMS already exist in countries which are members of the Organization for Economic Cooperation and Development (OECD): ISO 14001, which is worldwide, and the Eco-Management and Audit Scheme (EMAS), which is specific to European countries and has somewhat more ambitious requirements than ISO 14001. Also considered to be applicable EMS are those that are tailor-made for individual circumstances – for example, systems designed for the purpose of specific industrial sectors or enterprises.¹

Due diligence: due diligence is the level of judgement, care, prudence, determination and activity that would be reasonably expected of a person under particular circumstances.

Environmentally sound management: environmentally sound management means taking all practicable steps to ensure that hazardous wastes or other wastes are managed in a manner which will protect human health and the environment against the adverse effects which may result from such wastes.

¹ Definition extracted from the guidance manual for the implementation of OECD recommendation C (2004)100 on the environmentally sound management of waste (Paris, OECD, 2007).

Executive summary

In 2011, at its tenth meeting, the Conference of the Parties to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal recognized that harm to human health and the environment continues to be caused throughout the world by inadequate waste management procedures.² It stressed the critical importance of prevention and minimization of hazardous wastes and other wastes, while noting that a more systematic and comprehensive effort is needed to improve guidance on the environmentally sound management (ESM) of wastes.

Although ESM is defined in Article 2 of the Basel Convention, it is widely acknowledged that ESM is understood and implemented differently by parties in the context of the Convention. While implementation of the Convention requires application of its provisions in a consistent manner, countries as well as facilities may have different ways of applying ESM as they face different realities. In addition, ESM of wastes cannot be guaranteed within the confines of waste management or generator facilities without effective legal systems, government oversight and other infrastructure to protect the occupational safety and health of workers, communities and the environment. In the absence of such effective systems and infrastructure, ESM may not be readily available in some countries and facilities.

The framework for ESM of hazardous wastes and other wastes was developed to identify what countries should do at the national level and collectively as parties to the Convention to address the challenges of implementing ESM of wastes in a systematic and comprehensive manner. Intended as a practical guide for all stakeholders participating in the management of such wastes, the framework:

- (a) Establishes a common understanding of what ESM encompasses;
- (b) Identifies tools to support and promote the implementation of ESM;
- (c) Identifies strategies to implement ESM.

A common understanding of what environmentally sound management encompasses

ESM of wastes requires the development and implementation of a system of policies, legislation and regulations, monitoring and enforcement, incentives and penalties, technologies and other tools in which all key stakeholders participate and cooperate. The following elements should be taken into account when establishing, implementing or evaluating ESM:

- (a) Regulatory matters (e.g., compliance, enforcement, consistency and complementarity);
- (b) Facility-related matters (e.g., regarding construction and infrastructure);
- (c) Waste-related matters (e.g., prevention, collection, sorting, pre-treatment, treatment, storage, transport, downstream management);
- (d) Resource and process efficiency;
- (e) Environmental protection matters (e.g., prevention of pollution, emission limit values to air, water and soil);
- (f) Occupational safety and health (OSH) matters (e.g., regarding safety, health, liability and emergency response);
- (g) Organizational matters (e.g., valid licence or permit, monitoring, record keeping, information to be provided to the authorities, aftercare, environmental insurance, management abilities/training level and applicable EMS);
- (h) Transparency (publicly accessible information), due diligence and accountability;
- (i) Innovation and research and development (e.g., through funding, information exchange and cooperation with academia and others).

² Section B of decision BC-10/3 on the Indonesian-Swiss country-led initiative to improve the effectiveness of the Basel Convention.

Tools to support and promote the implementation of environmentally sound management

Tools to support and promote the implementation of ESM include a combination of legislative and regulatory tools, guidelines and/or codes of practice, voluntary certification schemes, voluntary agreements and schemes, mechanisms for cooperation at the international, regional, national and local levels, including with industry, training and awareness programmes and incentive schemes. They may be tailored to address specific waste streams. The framework outlines examples of tools in each of these categories and a supportive list of resource documents is provided in annex II.

Strategies to implement environmentally sound management

To ensure effective strategy development, it is critical to systematically anticipate, identify and prioritize issues that need to be addressed. This can be achieved by compiling baseline information on aspects such as the types and quantities of wastes generated, the potential for waste prevention and minimization, actual or potential risks posed to human health, worker safety and the environment, available infrastructure to manage wastes and the applicable laws and enforcement provisions in place.

Strategies to implement ESM should ensure that all the following core goals are met together:

- (a) Establish a comprehensive legal framework to:
 - (i) Effectively govern all waste management operations;
 - (ii) Protect public and worker health and safety;
 - (iii) Protect the environment; and
 - (iv) Address movements of waste in accordance with applicable international and regional agreements and conventions, including the Basel Convention;
- (b) Implement effective compliance and enforcement measures to assure conformity with applicable legal requirements;
- (c) Build sufficient domestic infrastructure and capacity to ensure the availability of adequate facilities to undertake waste management operations and ensure those facilities achieve ESM.

Key stakeholders, including Governments, waste generators, waste carriers, dealers, brokers, waste management facilities and non-governmental organizations, have a pivotal role to play in the achievement of ESM. Actions that these stakeholders should take to ensure the implementation of ESM are listed in the framework.

Transboundary movements may only take place if ESM is assured, without which such movements should be considered illegal. Implementing ESM in accordance with this framework should:

- (a) Reduce the need for transboundary movements to cases where it would present the best environmental outcome and achieve resource efficiency; for example, where the State of export lacks adequate capacity for ESM;
- (b) Lead to a common understanding and implementation of ESM so as to enable authorities and other stakeholders to determine the legitimacy of a transboundary movement.

Following the adoption of strategies, Governments are encouraged to set up a programme to measure their progress in the implementation of ESM. The choice of indicators that are to be used in that context may differ depending on the strategies that are put in place to overcome the challenges that have been identified. Typically, they should cover activities at government level and at facility level. Examples of key indicators for the verification of performance are suggested within the framework.

Recommendations

A series of recommendations, aimed at parties to the Basel Convention, other national Governments and other stakeholders are outlined at the conclusion of the framework document. Parties to the Convention and other national Governments are encouraged to formalize development and implementation of strategies to facilitate and advance ESM, taking into account the guidance provided in the framework. In addition, parties to the Convention are encouraged to review implementation of their strategies on a periodic basis and, in the event that goals are not being met, to identify the root cause, implement corrective actions and update their strategies as needed.

The “Other stakeholders” mentioned in the framework are encouraged to formalize the development and implementation of actions to achieve ESM, taking into consideration the guidance provided in the framework.

I. Background

1. At its tenth meeting, the Conference of the Parties to the Basel Convention, by section B of its decision BC-10/3 on the Indonesian-Swiss country-led initiative to improve the effectiveness of the Basel Convention, decided to complete the development of a framework for the environmentally sound management (ESM) of hazardous wastes and other wastes, including consideration of ways in which the framework and its elements might be linked to the issue of transboundary movement of hazardous and other wastes, taking into account subparagraph 2 (d) of Article 4³ of the Basel Convention.
2. This work was undertaken by a technical expert group (TEG), consisting of 30 experts nominated by parties based on equitable geographical representation of the five regional groups of the United Nations. The group was open to observers and could call upon additional experts as needed. It met three times: initially in April 2012 in Tokyo, at which time preliminary discussions on the framework took place and the group established its working modalities. A second meeting took place immediately following the eighth meeting of the Open-ended Working Group in September 2012, during which the technical expert group incorporated the feedback received from the eighth meeting of the Open-ended Working Group and further elaborated the framework. The framework was finalized during the third meeting of the group in Glion, Switzerland, in January 2013 and subsequently submitted to the eleventh meeting of the Conference of the Parties for its consideration and possible adoption.
3. In the context of this framework, environmentally sound management is considered as defined within Article 2 of the Basel Convention, that is “environmentally sound management of hazardous wastes or other wastes” means taking all practicable steps to ensure that hazardous wastes or other wastes are managed in a manner which will protect human health and the environment against the adverse effects which may result from such wastes.
4. TEG acknowledged the close linkages between ESM and transboundary movements of hazardous wastes and other wastes.⁴ Countries involved in a transboundary movement of wastes should ensure that the movement only takes place if the wastes will be managed in an environmentally sound manner and in accordance with the obligations of the Basel Convention.

II. Rationale and identification of the problem

5. In section B of decision BC-10/3, the Conference of the Parties recognized that harm to human health and the environment continues to be caused throughout the world by inadequate waste management procedures. They also stressed the critical importance of prevention and minimization of hazardous wastes and other wastes and acknowledged the existing activities that have been undertaken by parties and others to ensure ESM of hazardous wastes and other wastes. However, further dissemination of these activities is necessary and a more systematic and comprehensive effort is needed to improve guidance on the ESM of wastes.
6. In the course of the discussions of TEG, it became apparent that ESM is understood and implemented differently by parties within the context of the Basel Convention. Although implementation of the Convention requires application of its provisions in a consistent manner, countries as well as facilities may have different ways of applying ESM as they face different realities.
7. ESM of wastes cannot be guaranteed within the confines of waste management or generator facilities without effective legal systems, government oversight and other infrastructure to protect the occupational health and safety of workers, communities and the environment. In the absence of such effective systems and infrastructure, it is recognized that ESM may not be readily available in some countries and facilities.

³ Article 4.2. “Each Party shall take the appropriate measures to:...

d) Ensure that the transboundary movement of hazardous wastes and other wastes is reduced to the minimum consistent with the environmentally sound and efficient management of such wastes, and is conducted in a manner which will protect human health and the environment against the adverse effects which may result from such movement;”

⁴ See section VII below.

III. Scope and objectives

8. The framework identifies what countries should do at the national level and collectively as parties to the Basel Convention to address the challenges of implementing ESM of hazardous wastes and other wastes, within the scope of the Convention (hereinafter referred to as “wastes”), in a systematic, consistent and comprehensive manner. Intended as a practical guide for all stakeholders participating in the management of such wastes, the framework:

- (a) Establishes a common understanding of what ESM encompasses;
- (b) Identifies tools to support and promote the implementation of ESM;
- (c) Identifies strategies to implement ESM;
- (d) Specifies the roles of key stakeholders;
- (e) Describes the linkages between ESM and transboundary movements;
- (f) Provides a set of indicators to monitor whether a minimum level of ESM is established;
- (g) Provides a set of recommendations for further action.

9. In developing the framework, it was acknowledged that a considerable amount of time, effort and resources had already been utilized to support capacity-building, infrastructure development and the development of guidance in relation to ESM. This was both within the context of the work of the Basel Convention and in other forums. The framework thus strives to ensure consistency and compatibility with previous efforts, to the greatest extent practicable. Consequently, the framework includes a list of existing resource documents as an initial reference for stakeholders and to indicate where further guidance may be found. This list will be periodically updated to include new guidance documents as they emerge, thus ensuring a fully up-to-date reference point.⁵

IV. Guiding principles

10. Measures taken to implement this framework should be consistent with rights and obligations under international law, including with respect to trade and having regard for economic, environmental and social principles, such as those listed in annex I to the framework. Stakeholders should also as far as possible promote:

- (a) Prevention and minimization;
- (b) Sustainable use of resources in both production and consumption;
- (c) Recognition of waste as a resource (where appropriate);
- (d) An integrated life-cycle approach;
- (e) Innovation in the production and delivery of services.

11. In applying the framework, stakeholders should respect the waste management hierarchy (prevention, minimization, reuse, recycling, other types of recovery, including energy recovery, and final disposal). It is recommended that resources and tools be allocated in accordance with the hierarchy. Waste prevention should be the preferred option in any waste management policy. By not generating wastes and by ensuring that the wastes generated are less hazardous, the need to manage wastes and/or the risks and costs associated with doing so are reduced. Prevention, however, will not solve all the problems associated with waste management. Some wastes are already, or will inevitably be, generated and such wastes should be managed in an environmentally sound manner. When prevention and minimization possibilities have been exhausted, reuse, recycling and recovery techniques that deliver the best overall environmental outcomes, in accordance with the best available techniques (BAT), best environmental practices (BEP) and a life-cycle approach, are to be encouraged.

12. Governments and responsible authorities have a leading role to play in the implementation of ESM by setting requirements in their legislation and by implementing and enforcing them. All stakeholders involved in waste management, however, have an important role to play.

13. Partnerships, cooperation and synergies also have a key role in facilitating the implementation of ESM.

⁵ See annex II.

V. Framework for the environmentally sound management of hazardous wastes and other wastes

A. A common understanding of what environmentally sound management encompasses

14. ESM includes the entire waste management hierarchy, including waste prevention, minimization, reuse, recycling, recovery and final disposal. Waste that cannot be prevented must be managed from the moment it is generated until it is put to some useful purpose through a recycling or recovery operation, or disposed of safely. In order to ensure that wastes are managed in an environmentally sound manner, it is necessary to:

- (a) Have a clear picture as to which wastes are arising and the quantities that need to be managed;
- (b) Understand how these need to be managed to ensure ESM (which will vary according to the waste stream);
- (c) Have sufficient capacity to manage all waste streams in an environmentally sound manner;
- (d) Ensure that those with a role in the generation and management of wastes (including Governments, generators, carriers, dealers, brokers and those managing facilities) understand what they need to do to ensure wastes are managed in an environmentally sound manner;
- (e) Have a system that incentivizes compliance;
- (f) Monitor the effectiveness of the system;
- (g) Ensure transboundary movement of wastes is in compliance with the Basel Convention.

15. ESM of wastes requires the development and implementation of a system of policies, legislation and regulations, monitoring and enforcement, incentives and penalties, technologies and other tools in which all key stakeholders participate and cooperate. The following elements should be taken into account when establishing, implementing or evaluating ESM:

- (a) Regulatory matters (e.g., compliance, enforcement, consistency and complementarity);
- (b) Facility-related matters (e.g., regarding construction and infrastructure);
- (c) Waste-related matters (e.g., prevention, collection, sorting, pre-treatment, treatment, storage, transport, downstream management);
- (d) Resource and process efficiency;
- (e) Environmental protection matters (e.g., prevention of pollution, emission limit values to air, water and soil);
- (f) Occupational safety and health matters (e.g., regarding safety, health, liability and emergency response);
- (g) Organizational matters (e.g., valid licence or permit, monitoring, record keeping, information to be provided to the authorities, aftercare, environmental insurance, management abilities/training level, applicable EMS);
- (h) Transparency (publicly accessible information), due diligence and accountability;
- (i) Innovation and research and development (e.g., through funding, information exchange and cooperation with academia and others).

16. The above-mentioned elements of ESM need to be translated into roles and responsibilities for each stakeholder group. These are outlined below in the roles and responsibilities section of the framework.

B. Tools to support and promote the implementation of environmentally sound management

17. Having established a common understanding of what ESM encompasses, tools need to be identified to support and promote its implementation. These tools might include a combination of legislative and regulatory tools, guidelines and/or codes of practice, voluntary certification schemes, voluntary agreements and schemes, mechanisms for cooperation at the international, regional, national and local levels, including with industry, training and awareness programmes, accountability and

reporting mechanisms and incentive schemes. As a further step and where appropriate, they may be tailored to address specific waste streams. Some tools are briefly outlined below and examples are provided in annex II of the framework.

- (a) **Legislation.** Such legislation should make environmentally sound management operational and may include provisions on:
- (i) Responsibilities of key stakeholders;⁶
 - (ii) Technical and organizational requirements;
 - (iii) Occupational safety and health and environmental requirements;
 - (iv) Environmental liability and insurance;
 - (v) Product policies, including extended producer responsibility schemes;⁷
 - (vi) Permitting, licensing and certification schemes;⁸
 - (vii) Civil and criminal penalties for non-compliance;
 - (viii) Access to information by the public.
- (b) **Guidelines/codes of good practice.** Plain-language guidelines to accompany legislation and regulation to improve the knowledge and understanding of key stakeholders involved in making environmentally sound management operational.
- (c) **Voluntary certification schemes,** consistent with applicable international rules. Norms and standards created by standards developing bodies and certification programmes.
- (d) **Voluntary agreements and schemes:**
- (i) Schemes and voluntary agreements to ensure compliance with provisions regarding ESM (e.g., product policies including EPR, responsible care, take-back schemes);
 - (ii) Eco-labelling and awards to promote environmental innovation and design.
- (e) **Mechanisms for cooperation** (at international, regional, national and local levels, including with industry):
- (i) Ensure inter-agency cooperation, including through established enforcement networks, to achieve/ensure ESM;
 - (i) Promotion of ESM through trade/industry associations, learned bodies, etc.
- (f) **Training, awareness-raising and compliance promotion:**
- (ii) Programmes for personnel and operator training;
 - (iii) Awareness-raising to encourage implementation of ESM and communication strategies;
 - (iv) Creation of an enabling environment for research and development, innovation and technology transfer.
- (g) **Accountability and reporting mechanisms for all stakeholders;**
- (h) **Economic and non-economic incentives:**
- (i) Price incentives to promote and stimulate sorting at source;
 - (ii) Relief measures for facilities, such as reduced tax for a certain period, extension of a licensing period for an ESM facility, or other measures that reduce procedural or administrative burdens;
 - (iii) Recognition or award.

⁶ Including authorities, waste generators, carriers, dealers, brokers and management facilities.

⁷ Extended Producer Responsibility schemes are sometimes included in legislation to cover certain types of products. They may also be introduced on a voluntary basis by industry or in non-legislative agreements between industry sectors and Governments.

⁸ Governments may choose to utilize certification schemes as a compliance tool.

C. Strategies to implement environmentally sound management

18. Strategies should be developed by parties to foster and enhance implementation of ESM of wastes at the international, regional, national, local and facility levels. These strategies should respect the waste management hierarchy and be compatible with the concepts presented in part V, sections A and B of this framework. Parties should review the implementation of these strategies on a periodical basis. In the event that goals are not being met or desirable results are not being achieved the problem and its root cause should be identified, corrective action should be implemented and the strategy should be revised, with an implementation plan, as necessary.

19. It is recognized that implementation of ESM is an evolutionary process that takes time to achieve and that existing provisions can vary greatly from country to country and from facility to facility. The capabilities and challenges faced by least developed countries, developing countries and countries with economies in transition need to be considered. In light of this, strategies should be devised to address variations in circumstances. To ensure effective strategy development, it is critical to systematically anticipate, identify and prioritize issues that need to be addressed by compiling baseline information on a variety of waste-related aspects such as:

- (a) Types and quantities of wastes generated;
- (b) Potential for waste prevention and minimization;
- (c) Actual or potential risks posed to human health, worker safety and the environment;
- (d) Available infrastructure and capacity to manage wastes;
- (e) Applicable laws and enforcement provisions;
- (f) Waste facility or sector-based measures in place to support ESM;
- (g) Approaches used to validate whether facilities achieve ESM;
- (h) Types of informal waste management activities;
- (i) Availability of necessary funding to achieve ESM.

20. Any strategy should include a series of core goals to provide a general overview of how its overarching vision will be achieved. Taken together, the following goals represent tangible outcomes or milestones that are considered to be essential to achieve ESM:

- (a) Establish a comprehensive legal framework to:
 - (i) Effectively govern all waste management operations;⁹
 - (ii) Protect the public and workers' health and safety;
 - (iii) Protect the environment;
 - (iv) Address movements of wastes in accordance with applicable international and regional agreements and conventions, including the Basel Convention.

(b) Implement effective compliance and enforcement measures to assure conformity with applicable legal requirements;

(c) Build sufficient domestic infrastructure and capacity to ensure availability of adequate facilities to undertake waste management operations and ensure these facilities achieve ESM.

21. A comprehensive legal framework establishes a level playing field to protect human health and the environment by obligating all stakeholders involved in waste management operations to comply with legal requirements. Such requirements include provisions that respect international and regional obligations. While law-making is typically a function of Governments and their agencies, it is important for all stakeholders to be aware of, and comply with, existing and emerging legal requirements in the jurisdictions where they conduct business.

22. Effective compliance and enforcement measures ensure that legal requirements are being met by waste management operations. Governments should ensure that consistent measures are in place to enable the competent authorities to confirm whether waste management operations are achieving ESM. Other opportunities also exist and may pertain to compliance promotion efforts, training for inspectors and enforcement officers, joint investigations and intelligence-led inspection activities and court prosecutions. From a facility perspective, compliance with applicable legal requirements is a

⁹ Disposal operations refer to any operation specified in Annex IV (sections A and B) to the Basel Convention.

prerequisite for bona fide businesses and failure to comply with legal requirements can be very costly for an organization. Working with legally compliant suppliers and service providers is also important because it fosters ESM through management of the supply chain and serves to protect business reputations by meeting the expectations of investors, customers, regulators and the public. Voluntary certification schemes may be useful for confirmation of ESM. A number of standards and voluntary certification schemes are identified in annex II to the framework. The benefits of using such schemes to promote ESM should be explored.

23. Building sufficient domestic infrastructure and capacity to ensure availability of adequate facilities to undertake waste management operations allows wastes to be managed in close proximity to where they are generated, minimizing the need for them to be exported for management elsewhere, and provides opportunities for enhanced resource recovery, economic growth, employment and increased competitiveness within the global marketplace. Domestic infrastructure needs for waste management may vary considerably from country to country and include but are not limited to: collection services for wastes and recyclable materials; refurbishing, composting, material recovery and recycling facilities; and treatment and final disposal facilities for wastes.

24. The highest levels of support should be sought by key stakeholders to ensure acceptance of the vision and goals of their strategies to implement ESM and that adequate resources will be made available to support delivery. The importance and benefits of any strategy developed to foster and enhance implementation of ESM of wastes should also be well communicated to broaden awareness and foster acceptance of such strategies amongst key stakeholders.

VI. Role of key stakeholders

25. Key stakeholders, including Governments, waste generators, carriers, dealers, brokers, waste management facilities and non-governmental organizations, have a pivotal role to play in the achievement of ESM. This section of the framework lists the actions that these stakeholders should take to ensure implementation of ESM.

A. Governments

26. To ensure that wastes are managed in an environmentally sound manner and consistently within their respective domestic settings, Governments should ensure the provision and incorporation of certain policies into their legislative and regulatory frameworks, infrastructure and institutions. At the national level, Governments should:

- (a) Ensure that a national policy, supported by an appropriately resourced and integrated regulatory and enforcement infrastructure is in place which, at an appropriate governmental level:
 - (i) Puts in place legal requirements such as national measures and mechanisms to implement and enforce the provisions of relevant international and/or regional instruments e.g., national legislation and regulations. These requirements should also apply environmental policy tools;¹⁰
 - (ii) Puts in place an adequate infrastructure to enforce regulations, taking into consideration the capacity of the enforcement authorities;
 - (iii) Incorporates a policy to move towards internalization of environmental and human health costs and benefits in waste management;¹¹
 - (iv) Includes planning regulations that require appropriate design and location for waste management facilities, taking into account potential risks to the environment, including environmentally sensitive areas, and the requirement for

¹⁰ Policy tools available to assist countries in developing and applying legislation include the strategic framework for the implementation of the Basel Convention 2012–2021; Basel Convention model national legislation; Basel Convention guide to the control system; Basel Convention checklist for the national legislator; Stockholm Convention on Persistent Organic Pollutants guide to developing national legal frameworks; applicable national and international instruments and codes of practice in relation to occupational safety and health.

¹¹ In many cases, environmental and human health costs resulting from waste management are not fully reflected in the financial costs of waste management. These external costs may vary considerably depending on factors such as local conditions or the nature of the waste. The financial costs of waste management may therefore be less than the total social costs, with the difference being borne by other economic operators. As long as this is the case, waste generators and managers may not have sufficient incentives to adopt an appropriate level of waste management within their facilities. In the same way, any environmental benefits should be internalized into waste management decisions at the facility level. (Guidance manual for the Implementation of the OECD Recommendation C(2004)100 on Environmentally Sound Management (ESM) of Waste, 2007).

- an environmental and social impact assessment¹² to be conducted and approved by the appropriate authorities before a facility is constructed;
- (v) Includes tools/instruments to support the implementation of the waste management hierarchy and ESM, such as authorizations, licences, time-limited permits, standards, requirements for environmental insurance and aftercare;
 - (vi) Develops clear legislation based on the Basel Convention and its guidelines defining what is/is not waste and what is/is not hazardous waste;
 - (vii) Sets limit values for emissions to air, water and soil for waste management facilities with a view to not exceeding reference quality levels in the receiving environment;
 - (viii) Implements applicable national and international instruments and codes of practice in relation to occupational safety and health;
 - (ix) Facilitates the efforts of appropriate authorities¹³ to monitor the implementation and ensure compliance of waste management activities, including at the facility and individual level, with applicable legislation, rules and regulations;¹⁴
 - (x) In cases of non-compliance, includes provisions to allow prompt, adequate and effective enforcement actions to be undertaken, including sanctions and penalties, that will serve as a deterrent to non-compliance;
 - (xi) Supports the development and implementation of a regime for environmental liability and compensation for damage for facilities that carry out dangerous or potentially dangerous activities to ensure adequate measures upon definite cessation of activities and with a view to preventing and remedying potential environmental damage;
 - (xii) Supports the development and implementation of waste management for households, including increasing citizenship participation and public awareness, increasing collection efficiency and maximizing the separation of hazardous and non-hazardous wastes¹⁵ that can be reused and recycled and financing mechanisms to achieve such waste management improvements;
- (b) Foster continual improvement within the waste management sector, including:
- (i) Development of requirements for those facilities which are integral to the waste life-cycle (including facilities which are involved in the generation, transport, storage, recycling and disposal of wastes) that are consistent with the Basel Convention, relevant decisions of its Conference of the Parties and technical guidelines, whilst remaining sufficiently flexible to allow for stronger requirements and additional waste definitions, taking into account national contexts;¹⁶
 - (ii) Development and implementation of measures to ensure facilities operate according to appropriate BAT and BEP, in a step-wise manner, which take into consideration the protection of the environment and the technical, operational and economic feasibility of doing so, while working toward continually improving environmental performance;
 - (iii) Dissemination to all stakeholders of relevant technical guidance and guidelines adopted by the parties to the Basel and Stockholm conventions, as well as by other international organizations,¹⁷ for ESM of wastes;
 - (iv) Dissemination of information regarding existing activities related to ESM;

¹² A bibliography on social impact assessments can be found at: www.iaia.org/sia-bibliography/index.aspx.

¹³ Includes Basel Convention competent authorities and other relevant authorities.

¹⁴ For example, auditing schemes and training for competent authorities.

¹⁵ Wastes contained in Annex IX of the Basel Convention will not be wastes covered by Article 1, paragraph 1 (a), of the Basel Convention, unless they contain Annex I material to an extent causing them to exhibit an Annex III characteristic.

¹⁶ As provided for under Article 1, paragraph 1(b), Article 3 and Article 4 paragraph 11 of the Basel Convention.

¹⁷ Basel Convention technical guidelines are available from www.basel.int and Stockholm Convention technical guidelines are available from www.pops.int.

- (v) Encouragement of information exchange between all relevant stakeholders, including waste generators, carriers, dealers, brokers, managers and authorities, in order to foster waste prevention, optimize recovery and recycling operations and minimize the quantities, as well as the hazardousness of, wastes destined for disposal;¹⁸
 - (vi) Provision of incentives (e.g., economic incentives, regulatory relief measures such as fewer inspections, taxes, etc.) for facilities which adopt improvements going beyond the minimum performance elements outlined for the achievement of ESM at the facility level. Such measures could increase recycling and recovery rates, optimize resource productivity and minimize generation of waste residuals after recovery processes.
- (c) Provide incentives to foster the development of infrastructure for relevant waste management technologies and facilities that support the leading elements of the waste management hierarchy and ESM such as waste prevention, including:
- (i) Measures to increase waste prevention, reduction, reuse, recycling and recovery rates, taking into consideration sustainable management of materials;
 - (ii) Incentives to recognize environmental stewardship in the private sector and foster the development of voluntary certification programmes, consistent with the Basel Convention and other applicable international rules, relevant decisions of its Conference of the Parties, technical guidelines, relevant national implementing legislation, regulations and other measures;
- (d) Put in place measures to ensure due diligence and proper management of wastes by all operators downstream of the point of generation, including waste carriers, dealers, brokers, other managers and disposers;
- (e) Be transparent and require transparency to the public, subject to the appropriate protection of confidential business information;¹⁹
- (f) Establish effective and meaningful consultation mechanisms or partnerships with key stakeholders, including the private sector (manufacturers, designers, waste managers), workers, affected communities, non-governmental organizations, scientific, regional and international organizations and academia, and develop opportunities for technology transfer and technical assistance (enhancing industry support for knowledge-sharing and capacity building);
- (g) Ensure adequate investment in waste management infrastructure and ESM of wastes at a national level:
- (i) Where appropriate, ensure a legal and commercial framework to allow private investment in waste management infrastructure (public-private partnerships or commercial enterprises);
 - (ii) Incentivize waste generators and waste management facilities to practice ESM through regulation, pricing structures and penalties;
- (h) Put in place other measures to ensure ESM of wastes, including:
- (i) Legal requirements to implement and enforce the provisions of relevant international and/or regional instruments in relation to the transboundary movement of wastes (pre-notification, etc.), including the Basel Convention;
 - (ii) Legislation requiring waste generators and waste transporters (including waste carriers) to ensure that the collection and transportation of waste, as well as its storage and treatment, are carried out in conditions providing protection for the environment and human health;
 - (iii) An easily accessible register (preferably online) of all licensed waste facilities in the country. This register should include data showing the annual compliance of the facility in terms of its licence requirements (to facilitate national and

¹⁸ Examples of national initiatives, such as national waste prevention programmes, are available from www.basel.int.

¹⁹ For example, all documents connected with waste licences or permits should be publicly accessible. See as an example the Irish Environmental Protection Agency website www.epa.ie. The material on this website relating to licence applications is made publicly available by the Agency under its statutory functions and the requirements of the European Union directive on access to information on the environment.

international customers who wish to select a facility that is achieving ESM). This register should also include a summary of the national regulations governing the construction and operation requirements for each facility and the number of inspections carried out on an annual basis (to facilitate assessments by waste exporters of the existence of an appropriate regulatory framework and safety networks in the country of import to ensure ESM);

- (iv) Adequate monitoring, inspection and enforcement of waste imports and exports subject to the requirements of the Basel Convention, by agents of the State and cooperation with enforcement agencies in other States (to prevent illegal traffic). Ensure adequate penalties and sanctions for illegal traffic that will discourage such movements in the future.

B. Other stakeholders

27. Aside from Governments, other key stakeholders have a crucial role to play in ensuring a more systematic and comprehensive effort to improve ESM of wastes and to protect human health and the environment. These other stakeholders include waste generators, carriers, dealers and brokers, waste management facilities and non-governmental organizations.

1. Waste generators

28. Companies that generate wastes (waste generators) are responsible for ensuring they use and refer to BAT and BEP when undertaking activities that generate wastes. In doing so, they act to minimize the wastes generated, by ensuring research, investment in design, innovation and development of new products and processes that use fewer resources and energy and that reduce, substitute or eliminate the use of hazardous materials. These waste generators should aim for production that prioritizes the use of recovered or recycled materials; enables and encourages recovery of energy and resources at the end of the useful life of a product; and avoids additional pollution burden from waste management of end-of-life products.

29. Waste generators should internalize in their production processes and policies:

- (a) Cleaner or greener design and production by implementing industrial conversion processes where feasible;
- (b) Waste prevention and minimization;
- (c) Prior to production, research, design and innovation in production and delivery of services, especially impact assessment at end of life, and integrated design for reuse, repair, disassembling (when appropriate), recovery and recycling;
- (d) Assurance that waste management facilities and carriers comply with applicable legislation and hold corresponding licences/permits as appropriate;
- (e) A requirement for confirmation from waste management facilities that wastes have been managed in an environmentally sound manner;
- (f) Disclosure of information on generation, storage and disposal of wastes and that related to the use of hazardous chemicals and substances, their risks in products and wastes and their management inside and outside the facility;
- (g) As appropriate, a voluntary third-party environmental certification procedure, which may include an applicable EMS;
- (h) An understanding of proper implementation of and compliance with the Basel Convention for transboundary movements of wastes.

30. Where waste generators manage the waste generated at their sites themselves, these activities should meet the requirements as set out for waste management facilities in paragraphs 33 and 34 below.

2. Waste carriers

31. Persons or entities who transport wastes should have a licence or be registered as a waste carrier according to the legal provisions in the countries involved and have adequate installations for intermediary storage, when applicable. They should only transfer the wastes to an authorized person or entity. They should also ensure the following during the period in which the wastes are in their possession and/or under their control:

- (a) Compliance with applicable legislation and the holding of corresponding licences/permits as appropriate;
- (b) The wastes are adequately packed;
- (c) Wastes of different types are delivered separately and are not diluted;
- (d) The means of transport and the receptacles (drums or other packs in which the wastes are packed) are technically fit for the wastes they carry and have relevant certificates of examination. They should be kept in a good state of operation and be adequately cleaned to prevent mixing of wastes;
- (e) Adequate measures are being taken to prevent harm to human health and the environment in case of accidents or emergencies and that the staff has sufficient knowledge, guidance and equipment to that end and carries a contingency plan which includes specific procedures for the type of wastes being transported;
- (f) Sufficient environmental insurance or financial guarantees are in place;
- (g) All necessary documentation is available.

3. Waste dealers and brokers

32. Dealers and brokers should ensure that the wastes they buy and sell will be managed in such a way that ESM is assured. In particular they should ensure that:

- (a) They have the appropriate licences and approvals for executing their activities according to national legislation;
- (b) The relevant PIC procedure is complied with;
- (c) The shipment is appropriately packaged and labelled in accordance with national requirements, which may include the codes of the Globally Harmonized System of Classification and Labelling of Chemicals;
- (d) An appropriately documented custodial trail is available for each waste shipment undertaken;
- (e) The wastes will be delivered to a facility that has the proper licences and approvals to deal with the particular type of waste in question and that the operation of these facilities is in accordance with the requirements of ESM;
- (f) Adequate environmental insurance and financial guarantees are in place.

4. Waste management facilities

33. Waste management facilities that handle wastes should meet all basic requirements to ensure ESM of wastes and commit to continual improvement in their operations.²⁰

34. The whole life cycle of the facility should be covered, from planning and construction of a facility to its operation and subsequent dismantling or site remediation (in the event of accidents or spills during operation) or site clearance at end of life, as appropriate. As such, a facility should have the following, which should meet the approval of the competent authorities concerned:

- (a) Appropriate design and location of the plant, taking into account potential risks to the environment, including environmentally sensitive areas;
- (b) Where appropriate, an environmental and social impact assessment, which should be conducted and approved by the appropriate authorities before a facility is constructed;
- (c) Sufficient measures in place to safeguard OSH, including:
 - (i) Measures which meet the requirements of national OSH legislation;
 - (ii) Appropriate actions to address significant actual and/or potential risks to the health and safety of the public and of workers, based on a risk assessment, and to correct deficiencies that have been identified, including contingency arrangements in the event of plant breakdown or accidental spillages;

²⁰ For source information, see annex I of the recommendation of the OECD Council on the environmentally sound management of waste, C(2004)100, as amended by C(2007)97, available from <http://acts.oecd.org/Instruments/ShowInstrumentView.aspx?InstrumentID=51&InstrumentPID=48&Lang=en&Book=False>.

- (iii) An appropriate and adequate training programme for personnel, to ensure employees have an appropriate level of awareness, competency and training with respect to the effective management of occupational risks, including the effective management of wastes;
- (d) Sufficient measures in place to protect the environment, including:
 - (i) Measures to control pollution taking into account emission limit values to air, water and soil;
 - (ii) Appropriate actions to address significant actual and/or potential risks to the environment, based on risk assessment, and to correct deficiencies that have been identified, including contingency arrangements in the event of plant breakdown or accidental spillages;
 - (iii) Waste acceptance and handling criteria, including measures to ensure due diligence and proper collection, sorting, pre-treatment, treatment, storage and downstream management of wastes and residuals;
- (e) An applicable environmental management system in place, if feasible and appropriate, which:
 - (i) Describes, assesses and reviews the design, construction, operation, monitoring, management and maintenance of the facility and which will be periodically reviewed;
 - (ii) Demonstrates compliance with applicable legislation and regulations;
 - (iii) Demonstrates the commitment of management to integrating a systematic and consistent approach to achieve ESM in all aspects of facility operations;
 - (iv) Includes provisions to support transparency and confirm implementation of ESM by the facility, subject to appropriate protection of confidential business information, which can help assure the public that operations and activities are compatible with ESM. Such provisions may include third-party audits and inspections;
- (f) An adequate and transparent monitoring, recording, reporting and evaluation programme²¹ which covers:
 - (i) Relevant legal requirements, including key process parameters;
 - (ii) Compliance with applicable safety requirements;
 - (iii) Effluents and emissions;
 - (iv) Records of incoming, stored and outgoing wastes.
- (g) An adequate emergency plan and response mechanism;
- (h) An adequate plan for closure and aftercare, which includes the identification and remediation of contaminated sites.

5. Non-governmental organizations

35. Non-governmental organizations are an important stakeholder group, representing civil society and advocating on behalf of environmental protection, social welfare and other matters. They may variously provide value as an independent monitor and a source of research and information, policy development, public education and awareness-raising. They should be included by Government and other stakeholders in policy and legislative development as appropriate.

²¹ All relevant environmental records should be maintained and made available to competent authorities according to national legislation and/or local authorization/licence/permit requirements.

VII. Linkage between environmentally sound management and transboundary movements

36. In line with paragraph 219 of the outcome document of the United Nations Conference on Sustainable Development,²² and for the purposes of this framework, where linkages with transboundary movement of wastes are concerned, ESM should include all possible measures to prevent unsound management of hazardous wastes and other wastes and their illegal dumping, particularly in countries where the capacity to deal with these wastes is limited, in a manner consistent with the obligations of countries under relevant international instruments.
37. A common understanding and implementation of ESM in particular through national regulations, among other considerations, assists authorities and other stakeholders to determine the legitimacy of a transboundary movement of wastes.
38. Legal transboundary movements should ensure ESM that is consistent with Articles 4 to 9 of the Basel Convention, taking into account decision III/1 on an amendment to the Basel Convention for countries to which the amendment applies.
39. Transboundary movements of wastes for management in another country cannot be assured to result in ESM by evaluating receiving facilities alone. Elements such as those for effective legal systems and infrastructure listed in paragraph 7 above should also be considered.
40. Transboundary movements of wastes should not be considered to be legal where there is a reason to believe the waste in question will not be managed according to ESM. .
41. The availability of adequate ESM facilities should be promoted, especially if it leads to a reduction in transboundary movements of wastes.
42. Transboundary movements as referred to in paragraph 39 above may be part of facilitating the best environmental outcome, for example when the State of export lacks adequate capacity for ESM.

VIII. Indicators for the verification of performance

43. Following the adoption of strategies to implement ESM, Governments should set up a programme to measure progress in implementation. The choice of indicators that are to be used in that context may differ depending on the strategies that are put in place to overcome the challenges that have been identified. Typically, they would cover activities at both Government level and facility level.
44. Indicators to measure progress at Government level may include:
- (a) Legal instruments or requirements to implement and enforce the provisions of relevant international and/or regional instruments are in place;²³
 - (b) National strategies, plans, programmes or systems to support the waste management hierarchy are developed and implemented;
 - (c) Schemes at the national or regional level to foster continual improvement within the waste management sector, including measures to ensure facilities operate according to appropriate BAT and BEP, encourage information exchange, provide incentives and implement the relevant technical guidance and guidelines adopted by the Basel Convention;
 - (d) Systems for measuring, monitoring, recording and reporting to assess progress in ESM of wastes have been implemented;
 - (e) Number of notifications for export of wastes destined for ESM facilities;
 - (f) Checklists for inspectors to support regular inspections and enforcement have been developed and implemented;

²² Annex to General Assembly resolution 66/288.

“219. We urge countries and other stakeholders to take all possible measures to prevent the unsound management of hazardous wastes and their illegal dumping, particularly in countries where the capacity to deal with these wastes is limited, in a manner consistent with the obligations of countries under relevant international instruments. In this context, we welcome the relevant decisions taken at the tenth meeting of the Conference of the Parties to the Basel Convention, held in Cartagena, Colombia, from 17 to 21 October 2011.”

²³ This may be a general indicator or a more detailed set of indicators covering legislation on storage, packing, risk management, emissions, transport, etc.

(g) Active participation in networking and information exchange among relevant parties and networks about ESM, e.g., IMPEL, INTERPOL, INECE and the Asian Network for the Prevention of Illegal Transboundary Movement of Hazardous Wastes, etc.

(h) Ensuring that training programmes for staff involved in the ESM of wastes have been developed and executed.

45. Indicators to measure progress at the facility level may include ensuring that:

(a) Environmental and social impact assessments for approval by appropriate authorities were undertaken and submitted before the location of the facility was determined and construction took place;

(b) An applicable environmental management system e.g., ISO 14001 or EMAS, etc., has been developed and implemented;

(c) The waste management facility has obtained all the necessary permits, according to the applicable legislation;

(d) Appropriate audits (internal and external) have been submitted;

(e) Training programmes for staff involved in ESM of wastes have been developed and executed;

(f) Emergency plans and response mechanisms have been developed and applied;

(g) Plans for closure and aftercare have been developed and submitted to the appropriate authorities.

IX. Recommendations

46. Parties to the Basel Convention should:

(a) Compile baseline information on those waste-related aspects identified in paragraph 19 above and develop strategies based on this information (Ref. paragraphs 18 & 19);

(b) Review implementation of the strategies referred to in subparagraph (a) above on a periodic basis. In the event that goals are not being met or desirable results are not being achieved, the problem and its root cause should be identified, corrective action should be implemented and the implementation plan and/or strategy should be updated where necessary (Ref. paragraphs 18, 19 & 20);

(c) Formalize development and implementation of strategies under the work of the Basel Convention to facilitate and advance ESM at the international and regional levels, taking into consideration the guidance provided in this framework and specifically the core goals outlined in paragraph 20 above (Ref. paragraphs 18, 19 & 20).

47. National Governments should formalize development and implementation of strategies to facilitate and advance ESM at the national and local levels, taking into consideration the guidance provided in this framework (Ref. paragraph 26).

48. The “Other stakeholders” mentioned in this framework should be encouraged to formalize development and implementation of actions to achieve ESM, taking into consideration the guidance provided in this framework (Ref. paragraphs 27 to 35).

Annex I

Guiding principles

Measures taken to implement this framework should be consistent with rights and obligations under international law, including with respect to trade and having regard to economic, environmental and social principles such as:

- (a) The “polluter pays” principle, defined in the Rio Declaration on Environment and Development as principle 16, under which national authorities should endeavour to promote the internalization of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment;
- (b) The precautionary approach defined in the Rio Declaration on Environment and Development as principle 15, whereby in order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation;
- (c) The proximity principle, derived from Article 4, paragraph 2 (b) of the Basel Convention, which states that each Party shall take appropriate measures to ensure the availability of adequate disposal facilities, for the environmentally sound management of hazardous wastes and other wastes, that shall be located, to the extent possible, within it, whatever the place of their disposal; and Article 4, paragraph 2 (d), which states that each party shall take appropriate measures to ensure that the transboundary movement of hazardous wastes and other wastes is reduced to a minimum consistent with the environmentally sound and efficient management of such wastes and is conducted in a manner which will protect human health and the environment against the adverse effects which may result from such movement;
- (d) The least transboundary movement principle also deriving from Article 4, paragraphs 2 (b) and 2 (d) of the Basel Convention (see also the proximity principle in (c) above);
- (e) The principle of responsibility for ESM of hazardous waste generated within a State cannot be transferred to another State, based on Article 4, paragraph 10 of the Basel Convention;
- (f) The goal of environmental justice for the fair treatment and meaningful involvement of all people regardless of race, colour, national origin or income, with respect to the development, implementation and enforcement of environmental laws, regulations, and policies.

Annex II

Resource documents¹

A common understanding of what environmentally sound management encompasses

1. Recommendation of the OECD Council on the environmentally sound management of waste of 9 June 2004 - C(2004)100 amended on 16 October 2007 - C(2007)97 (annex I includes the core performance elements for the environmentally sound management of waste), available from: <http://acts.oecd.org/Instruments/ShowInstrumentView.aspx?InstrumentID=51&InstrumentPID=48&Lang=en&Book=False>.
2. Guidance manual for the implementation of recommendation C(2004)100, available from: www.oecd.org/dataoecd/23/31/39559085.pdf.
3. Guidance documents on the preparation of technical guidelines for the environmentally sound management of wastes subject to the Basel Convention, 1994, available from: www.basel.int/Implementation/TechnicalMatters/DevelopmentofTechnicalGuidelines/AdoptedTechnicalGuidelines/tabid/2376/Default.aspx.
4. Environmentally sound management criteria recommendations for the Partnership for Action on Computing Equipment, 2009, revised in 2011, available from: <http://archive.basel.int/industry/compartnership/docdevpart/aipgReportESMCriteriaRecommendations-2011-03-15.pdf>.

Tools to support and promote the implementation of environmentally sound management

Model legislation and other related tools

5. Basel Convention Model National Legislation, available from: www.basel.int/Implementation/LegalMatters/LegalFramework/Tools/tabid/2750/Default.aspx.
6. Basel Convention Checklist for the National Legislator, available from: www.basel.int/Implementation/LegalMatters/LegalFramework/Tools/tabid/2750/Default.aspx.
7. Basel Convention Guide to the Control System, available from: <http://archive.basel.int/pub/pub.html>.

Guidelines/codes of good practice

8. Waste stream-specific technical guidelines that have been developed and adopted under the Basel Convention, available from: www.basel.int/Implementation/TechnicalMatters/DevelopmentofTechnicalGuidelines/AdoptedTechnicalGuidelines/tabid/2376/Default.aspx.
9. Stockholm Convention on Persistent Organic Pollutants, Guide to developing national legal frameworks, available from: <http://chm.pops.int/Convention/LegalMatters/LegalMattersPublications/tabid/2245/Default.aspx>.
10. The Cairo Guidelines and Principles for the Environmentally Sound Management of Hazardous Wastes, 1987, available from www.basel.int/Implementation/LegalMatters/CountryLedInitiative/OutcomeofCOP10/DevelopingguidelinesforESM/TechnicalExpertGroup/Documents/tabid/2683/Default.aspx.
11. Guidelines on best available techniques and provisional guidance on best environmental practices, available from: <http://chm.pops.int/Implementation/BATBEP/Guidelines/tabid/187/Default.aspx>.
12. Guidance on development of national implementation plans, available from: <http://chm.pops.int/Implementation/NIPs/Overview/tabid/565/Implementation/NIPs/Guidance/tabid/587/language/en-US/Default.aspx>.
13. Best available techniques reference documents, European Commission, available from: <http://eippcb.jrc.es/reference/>.

¹ This annex provides a non-exhaustive list of resource documents.

14. United Nations Environment Programme, Division of Technology, Industry and Economics, International Environmental Technology Centre publications, available from: www.unep.or.jp/ietc/SPC/publications.asp.

15. Training Resource Pack for training on hazardous waste management, available from: www.trp-training.info/.

Standardization/voluntary certification schemes:

16. ISO Standards, available from www.iso.org/iso/home.html.

17. ISO 14001 standard, available from: www.iso.org/iso/iso_catalogue/management_and_leadership_standards/environmental_management/iso_14000_essentials.htm.

18. British Standards Institution, OHSAS 18001 Occupational Health and Safety Management, available from: www.bsigroup.com/en/Assessment-and-certification-services/management-systems/Standards-and-Schemes/BSOHSAS-18001/.

19. European Union Eco-Management and Audit Scheme (EMAS), available from: http://ec.europa.eu/environment/emas/index_en.htm.

20. Bureau of International Recycling, Tools for Environmentally Sound Management, (2006), available from: www.bir.org/assets/Documents/Public/GuideESM.pdf.

21. Bureau of International Recycling, Tools for Occupational Health and Safety Management, (2013), available from: ww.bir.org/assets/Documents/publications/OHSMS-Tools/OHSMS-Tools.pdf.

22. Basel Action Network, e-Stewards standard for responsible recycling and reuse of electronic equipment, available from: <http://e-stewards.org/certification-overview/>.

23. Recycling Industry Operating Standard (RIOS), available from: www.isri.org/imis15_prod/ISRI/_Program_and_Services/Recycling_Industry_Operating_Standards__RIOS_/ISRI/_Program_and_Services/Recycling_Industry_Operating_Standards__RIOS_.aspx.

24. R2Solutions, responsible recycling practices for use in accredited certification programmes, available from: www.r2solutions.org/.

25. PAS 99 (publicly available specification) integrated management system requirements specification, available from: www.bsigroup.com/en-GB/pas-99-integrated-management/.

26. Recycler Qualification Office, recycling vendors qualification programme and electronics reuse and refurbishing programme, available from: www.rqp.ca.

Additional guidance on occupational safety and health:

27. International Labour Organization guidelines on occupational safety and health management systems (ILO-OSH 2001), available from: www.ilo.org/safework/info/standards-and-instruments/WCMS_107727/lang--en/index.htm.

28. OHSAS 18001 Standards for Occupational Health and Safety Management Systems is usually available from national standards institutions, e.g., the British Standards Institution:

www.bsigroup.com

The following site is an electronic tool kit which includes the standard and advice but has to be purchased for \$395 from www.ohsas-18001-occupational-health-and-safety.com/ohsas-18001-kit.htm.

29. The Health and Safety Authority of Ireland has online advice on developing an OHS management system for a number of different occupations/industries. While waste management is not yet included in its directory, the site contains some useful general videos covering the elements of an OHS system (as per Irish legislation) and risk assessment. See the following links:

<http://vimeo.com/19383449> about the online system

<http://vimeo.com/19971075> on risk assessment

<http://vimeo.com/19970831> on the safety statement.

30. The United Kingdom Health and Safety Executive has useful online guidance on occupational health and safety relating to the waste industry, including various specific areas of waste management, including: www.hse.gov.uk/waste/index.htm on waste management and recycling
www.hse.gov.uk/waste/waste-electrical.htm on waste electrical and electronic equipment recycling.

31. The United States Department of Labor, Occupational Safety and Health Administration, 29 Code of Federal Regulation (CFR) 1910.120 , occupational safety and health standards on hazardous waste operations and emergency response that employers must follow to protect workers engaged in hazardous waste operations and emergency response work, available from: www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9765.
