



Distr.: General
27 November 2018
Original: English

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

Geneva, 29 April–10 May 2019

Item 4 (b) (i) of the provisional agenda*

**Matters related to the implementation of the Convention:
scientific and technical matters: technical guidelines**

Technical guidelines

Addendum

Technical guidelines on transboundary movements of electrical and electronic waste and used electrical and electronic equipment, in particular regarding the distinction between waste and non-waste under the Basel Convention

Note by the Secretariat

1. As is mentioned in document UNEP/CHW.14/7, the annex to the present note sets out the suggestions for amendments to the technical guidelines on transboundary movements of electrical and electronic waste and used electrical and electronic equipment, in particular regarding the distinction between waste and non-waste under the Basel Convention adopted on an interim basis by the Conference of the Parties at its twelfth meeting¹.
2. The expert working group met twice and the reports of both face-to-face meetings, which contain details about the proposed changes to the technical guidelines, can be found on the Convention website.²
3. The suggestions prepared by the expert working group have been tracked so that they can be easily identified. The present note, including its annex, has not been formally edited.

* UNEP/CHW.14/1.

¹ UNEP/CHW.12/5/Add.1/Rev.1.

² <http://basel.int/Implementation/Ewaste/TechnicalGuidelines/Meetings/tabid/4235/Default.aspx>.

Annex

Technical guidelines on transboundary movements of electrical and electronic waste and used electrical and electronic equipment, in particular regarding the distinction between waste and non-waste under the Basel Convention

(Draft of 29 June 2018)

Contents

Abbreviations and acronyms	4
I. Introduction	5
A. Scope	5
B. About e-waste	6
II. Relevant provisions of the Basel Convention	7
A. General provisions of the Basel Convention	7
B. Control procedure for transboundary movements of waste	8
C. Definitions of waste and hazardous waste	9
III. Guidance on the distinction between waste and non-waste	9
A. General considerations	9
B. Situations where used equipment should normally be considered waste, or not be considered waste	10
C. Evaluation and testing of used equipment destined for direct reuse	15
IV. Guidance on transboundary movements of e-waste	15
A. General considerations	15
B. Distinction between hazardous waste and non-hazardous waste	16
V. Guidance on the enforcement of provisions regarding transboundary movements of e-waste and used equipment	17
VI. Guidance related to facilities for conducting failure analysis, repair and refurbishment	18
VII. Concluding remarks	19
Appendix I: Glossary of terms	20
Appendix II: Information accompanying transboundary transports of used equipment falling under paragraph 31 (a), including on recording the results of evaluation and testing of used equipment	22
Appendix III: Information accompanying transboundary transports of used equipment falling under paragraph 31 (b)	24
Appendix IV: Reference materials	28
Appendix V: Issues for further work	31
Appendix VI: References	34

Abbreviations and acronyms

BFR	brominated flame retardant
CFCs	chlorofluorocarbons
CMR	Convention Relative au Contrat de Transport International de Marchandises par Route (Convention on the Contract for the International Carriage of Goods by Road)
COP	Conference of the Parties
CRT	cathode ray tubes
EC	European Community
ESM	environmentally sound management
EU	European Union
HS	Harmonized Commodity Description and Coding System (“Harmonized System” for short) (developed by WCO)
ILO	International Labour Organization
kg	kilogram
LCD	liquid crystal display
mg	milligram
MPPI	Mobile Phone Partnership Initiative
OECD	Organisation for Economic Co-operation and Development
OHS	occupational health and safety
OHSAS	occupational health and safety assessment series
PACE	Partnership for Action on Computing Equipment
PBBs	polybrominated biphenyls
PC	personal computer
PCBs	polychlorinated biphenyls
PCNs	polychlorinated naphthalenes
PCTs	polychlorinated terphenyls
POPs	persistent organic pollutants
PVC	polyvinyl chloride
RoHS	Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS Directive)
StEP	Solving the e-waste problem (international initiative)
UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environment Programme
UNU	United Nations University
TBM	transboundary movement
WCO	World Customs Organization
WEEE	waste electrical and electronic equipment

I. Introduction

A. Scope

1. The present technical guidelines provide guidance on transboundary movements of waste electrical and electronic equipment (hereinafter referred to as “e-waste”) and used electrical and electronic equipment (used equipment) that may or may not be e-waste, in particular on the distinction between waste and non-waste, pursuant to decisions IX/6, BC-10/5, BC-11/4, [BC-12/5](#), [BC-13/5](#) and [BC-12/514/\[...\]](#) of the Conference of the Parties to the Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and Their Disposal (hereinafter referred to as “the Convention”).
2. The present guidelines focus on clarifying aspects related to transboundary movements of e-waste and used equipment that may or may not be waste. Countries define and evaluate the distinction between waste and non-waste in different manners when considering used equipment destined, e.g., for direct reuse or extended use by the original owner for the purpose for which it was conceived, or for failure analysis, repair and refurbishment. Certain parties may consider used equipment destined for failure analysis, repair or refurbishment to be waste, while others may not. Further, the present guidelines consider which e-waste is hazardous waste or “other waste” and therefore would fall under the provisions of the Convention. Such distinctions will be helpful for enforcement agencies to assess if the provisions of the Basel Convention on transboundary movements apply, as the Convention only applies to hazardous wastes and other wastes.
3. Only the transboundary transport of whole used equipment and components that can be removed from equipment, be tested for functionality and subsequently be directly reused, sent for failure analysis or reused after repair or refurbishment is considered in the present guidelines. For the purpose of these guidelines, the term “equipment” also covers such components.³ Transboundary movements of materials that have been removed or that derive from the dismantling or recycling of e-waste and are waste, such as metals, plastics, PVC-coated cables or activated glass, are not addressed in the present guidelines, regardless of whether or not they fall under the provisions of the Convention.
4. The present guidelines provide:
 - (a) Information on the relevant provisions of the Convention applicable to transboundary movements of e-waste;
 - (b) Guidance on the distinction between waste and non-waste when used equipment is moved across borders;
 - (c) Guidance on the distinction between hazardous waste and non-hazardous waste when used equipment is moved across borders; and
 - (d) General guidance on transboundary movements of hazardous e-waste and used equipment and enforcement of the control provisions of the Convention.
5. The present guidelines are intended for government agencies, including enforcement agencies, that wish to implement, control and enforce legislation and provide training regarding transboundary movements. They are also intended to inform all actors involved in the management of e-waste and used equipment so they can be aware of the application of the Basel Convention and other considerations when preparing or arranging for transboundary movements of such items.
6. Their application should help reduce transboundary movements of e-waste in the scope of the Convention to the minimum consistent with the environmentally sound and efficient management of such waste and reduce the environmental burden of e-waste that currently may be exported to countries and facilities that cannot handle it in an environmentally sound manner.
7. The present guidelines do not address other aspects of environmentally sound management (ESM) of e-wastes, such as collection, treatment-~~or~~ disposal- [or extended producer responsibility \(EPR\)](#). These aspects ~~may be~~ covered in other guidance documents [developed under the Basel Convention](#). [There are documents covering ESM generally, including the ESM toolkit⁴, for example a practical manual on EPR. There is also](#) a series of guidelines developed in the context of the following

³ For definitions and explanations of the terms used in the present guidelines, see appendix I (glossary of terms).

⁴

<http://basel.int/Implementation/CountryLedInitiative/EnvironmentallySoundManagement/ESMToolkit/Overview/tabid/5839/Default.aspx>

two public-private partnership initiatives under the Basel Convention (See decisions BC-10/20, BC-10/21, [BC-11/15](#) and [BC-14/15-13/12](#) by the Conference of the Parties regarding these initiatives):

- (a) Mobile Phone Partnership Initiative (MPPI):
 - (i) Revised guidance document on the environmentally sound management of used and end-of-life mobile phones (UNEP/CHW.10/INF/27/Rev.1);
 - (ii) Guideline on awareness raising-design considerations (MPPI, 2009a);
 - (iii) Guideline on the collection of used mobile phones (MPPI, 2009b);
 - (iv) Guideline for the transboundary movement of collected mobile phones (MPPI, 2009c);
 - (v) Guideline on the refurbishment of use mobile phones (MPPI, 2009d);
 - (vi) Guideline on material recovery and recycling of end-of-life phones (MPPI, 2009e);
- (b) Partnership for Action on Computing Equipment (PACE):
 - (i) Guidance document on the environmentally sound management of used and end-of-life computing equipment (UNEP/CHW.~~11/6/Add.13~~/INF/31/Rev.1)~~(See Sections 1, 2, 4 and 5, annex I)~~;
 - (ii) Environmentally sound management criteria recommendations (PACE, 2009);
 - (iii) Guideline on environmentally sound testing, refurbishment and repair of used computing equipment (PACE, [2013a](#));
 - (iv) Guideline on environmentally sound material recovery and recycling of end-of-life computing equipment (PACE, [2013b](#)).

~~(v) — Guidance on transboundary movement (TBM) of used and end-of-life computing equipment (PACE, 2011e).~~

B. About e-waste

8. The volume of e-waste being generated is growing rapidly due to the widespread use of electrical and electronic equipment in both developed and developing countries. The total amount of global e-waste generated in 2005 was estimated to be 40 million tonnes (StEP, 2009). The latest estimates indicate that in ~~2012 48.9~~[2016 44.7](#) million ~~metric~~ tonnes of e-waste were generated globally (~~Huisman, 2012~~)~~-The Global E-waste Monitor 2017~~. The amount of e-waste generated in the European Union was estimated at between 8.3 million and 9.1 million tonnes in 2005 ~~and was expected to reach some 12.3 million tonnes in 2020~~ (United Nations University, 2007). The latest estimation of the total e-waste generation in Europe in 2016 was 12.3 million tonnes (Global E-waste Monitor 2017). Currently e-waste is exported to countries that are not likely to possess the infrastructure and societal safety nets to prevent harm to human health and the environment, due to factors such as exports being less expensive than managing the waste domestically, the availability of markets for raw materials or recycling facilities, and the location of manufacturers of electrical and electronic equipment. However, there are also examples of formal recycling facilities in developing countries and economies in transition that are repairing, refurbishing and recycling used equipment and e-waste in an environmentally sound manner. However, in some cases the practices outside such facilities, e.g., downstream waste management, may not constitute environmentally sound management.

9. As a result of the EU Directive on Restrictions of the use of certain hazardous substances in electrical and electronic equipment (RoHS Directive)⁵ and similar national legislation elsewhere, the use of hazardous substances in various kinds of electrical and electronic equipment has been greatly reduced or eliminated in recent years. However, certain types of e-waste may still contain hazardous substances such as lead, cadmium, mercury, POPs, asbestos and CFCs that pose risks to human health and the environment when improperly disposed of or recycled and that require specific attention to ensure their environmentally sound waste management. In most developing countries and countries with economies in transition, the capacity to manage hazardous substances in e-waste is lacking. As an

⁵ Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment. OJ L 174, 1.7.2011, pp. ~~88-110~~[88-110](#) (see http://ec.europa.eu/environment/waste/rohs_eee/legis_en.htm)

example, there is clear evidence that the informal recovery industry in Asia ~~exploit~~exploited women and child labourers who ~~cook~~cooked circuit boards, ~~burn~~burned cables and ~~submerge~~submerged equipment in toxic acids to extract precious metals such as gold (Schmidt, 2006), and ~~subjects~~subjected them and their communities to damaged health and a degraded environment. Moreover, the techniques used by the informal sector are not only damaging human health and the environment, but often they also perform poorly in recovering valuable resources, thereby squandering precious resources such as critical metals for future use. Even management of non-hazardous wastes can cause significant harm to human health and the environment if not undertaken in an environmentally sound manner. As a further example, there is evidence that there is extensive lead contamination in both ambient air and topsoil at the Agbogbloshie e-waste recycling/disposal site in Accra, Ghana, and that the potential for human health impact both to workers and local residents is substantial given the urban nature of this site as well as the large adjacent food distribution market (Caravanos J. et al., 2013).

10. E-waste often contains valuable materials that can be recovered for recycling, including iron, aluminium, copper, gold, silver, platinum, palladium, indium, gallium and rare earth metals, and thereby contribute to sustainable resource management, since the extraction of these metals from the Earth has significant environmental impacts. The recovery and use of such materials as raw materials after they have become waste can increase the efficiency of their use and lead to the conservation of energy and a reduction in greenhouse gas emissions when adequate technologies and methods are applied.

11. Direct reuse of equipment or reuse after repair or refurbishment can contribute even more to sustainable development. By extending the life of equipment, reuse reduces the environmental footprint of the resource-intensive processes involved in producing the equipment. Reuse may also facilitate the availability of equipment to groups in society that otherwise would not have access to it, since the cost of ~~second-hand~~used equipment is lower than that of new equipment. In many instances, there are regional facilities that are specialized and have trained personnel in order to properly repair or refurbish used equipment. Since these facilities are not present in all countries, used equipment destined for repair or refurbishment may need to be moved across borders prior to reuse.

12. Failure to handle equipment properly can have negative impacts and often entails disposal when parts are replaced and discarded. The lack of clarity in defining when used equipment is waste and when it is not has led to a number of situations where such equipment is exported to, in particular, developing countries ostensibly for reuse but where a large percentage of the exported equipment is in fact not suitable for further use or is not marketable and must be disposed of as waste in recipient countries.

II. Relevant provisions of the Basel Convention

A. General provisions of the Basel Convention

13. -The Basel Convention aims to protect human health and the environment against the adverse effects resulting from the generation, management, transboundary movements and disposal of hazardous and other wastes.

14. Article 2 (“Definitions”), paragraph 1, of the Convention defines wastes as “substances or objects which are disposed of or are intended to be disposed of or are required to be disposed of by the provisions of national law”. Paragraph 4 of that article defines disposal as “any operation specified in Annex IV” to the Convention. Paragraph 8 of the same article defines the environmentally sound management of hazardous wastes or other wastes as “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.”

15. Article 4 (“General obligations”), paragraph 1, establishes the procedure by which parties exercising their right to prohibit the import of hazardous wastes or other wastes for disposal shall inform the other parties of their decision. Paragraph 1 (a) states: “Parties exercising their right to prohibit the import of hazardous or other wastes for disposal shall inform the other Parties of their decision pursuant to Article 13.” Paragraph 1 (b) states: “Parties shall prohibit or shall not permit the export of hazardous or other wastes to the parties which have prohibited the import of such wastes when notified pursuant to subparagraph (a) above.”

16. Article 4, paragraphs 2 (a)-(e) and 2 (g), contains key provisions of the Basel Convention pertaining to environmentally sound management, transboundary movement, waste minimization and waste disposal practices aimed at mitigating adverse effects on human health and the environment:

“Each Party shall take the appropriate measures to:

- (a) Ensure that the generation of hazardous wastes and other wastes within it is reduced to a minimum, taking into account social, technological and economic aspects;
- (b) 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;
- (c) Ensure that persons involved in the management of hazardous wastes or other wastes within it take such steps as are necessary to prevent pollution due to hazardous wastes and other wastes arising from such management and, if such pollution occurs, to minimize the consequences thereof for human health and the environment;
- (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;
- (e) Not allow the export of hazardous wastes or other wastes to a State or group of States belonging to an economic and/or political integration organization that are Parties, particularly developing countries, which have prohibited by their legislation all imports, or if it has reason to believe that the wastes in question will not be managed in an environmentally sound manner, according to criteria to be decided on by the Parties at their first meeting;
- (g) Prevent the import of hazardous wastes and other wastes if it has reason to believe that the wastes in question will not be managed in an environmentally sound manner.”

17. Hazardous wastes and other wastes should, as far as is compatible with environmentally sound and efficient management, be disposed of in the country where they were generated (preambular paragraph 8). Transboundary movements of such wastes from the country of their generation to any other country should be permitted only when conducted under conditions that do not endanger human health and the environment (preambular paragraph 9). In addition, transboundary movements of hazardous wastes and other wastes are permitted only if:

- (a) Such wastes, if exported, are managed in an environmentally sound manner in the country of import or elsewhere (Article 4, paragraph 8); and
- (b) One of the following conditions is met (Article 4, paragraph 9):
 - (i) The country of export does not have the technical capacity and the necessary facilities, capacity or suitable disposal sites to dispose of the wastes in question in an environmentally sound and efficient manner; or
 - (ii) The wastes in question are required as a raw material for recycling or recovery industries in the country of import; or
 - (iii) The transboundary movement in question is in accordance with other criteria decided by the parties.

B. Control procedure for transboundary movements of waste

18. Any transboundary movement of hazardous and other wastes is subject to prior written notification from the exporting country and prior written consent from the importing country and, if appropriate, transit countries (Article 6, paragraphs 1-4). Parties shall prohibit the export of hazardous wastes and other wastes if the country of import prohibits the import of such wastes (Article 4, paragraph 1 (b)). Some countries have implemented national prohibitions, *inter alia* following Decision III/1 of the Conference of the Parties, which contains an amendment to the Convention that has not yet entered into force and bans the export of hazardous wastes from the countries listed in Annex VII (OECD and EU countries and Liechtenstein) to non-Annex VII countries. The Basel Convention also requires that information regarding any proposed transboundary movement of hazardous and other wastes be provided to the countries concerned using the accepted notification form (Article 4, paragraph 2 (f)) and that the approved shipment be accompanied by a movement document from the point at which the transboundary movement commences to the point of disposal (Article 4, paragraph 7 (c)).

19. Furthermore, hazardous wastes and other wastes subject to transboundary movements should be packaged, labelled and transported in conformity with international rules and standards (Article 4, paragraph 7 (b)).⁶

20. When transboundary movements of hazardous and other wastes to which consent of the countries concerned has been given cannot be completed, the country of export shall ensure that the wastes in question are taken back into the country of export if alternative arrangements cannot be made for their disposal in an environmentally sound manner (Article 8, first sentence). In the case of illegal traffic (as defined in Article 9, paragraph 1) as a result of conduct on the part of the exporter or generator, the country of export shall ensure that the wastes in question are:

(a) Taken back by the exporter or the generator or, if necessary, by itself into the country of export, or, if impracticable,

(b) Otherwise disposed of in accordance with the provisions of the Convention (Article 9, paragraph 2).

21. No transboundary movements of hazardous wastes and other wastes are permitted between a party and a non-party to the Convention (Article 4, paragraph 5) unless a bilateral, multilateral or regional arrangement exists, as required under Article 11 of the Convention.

C. Definitions of waste and hazardous waste

22. The Convention defines wastes as “substances or objects which are disposed of or are intended to be disposed of or are required to be disposed of by the provisions of national law” (Article 2, paragraph 1). It defines disposal in Article 2, paragraph 4, as “any operation specified in Annex IV to this Convention.” It is important to note that national provisions concerning the definition of waste may differ and, therefore, the same material may be regarded as waste in one country but as non-waste in another country.

23. Hazardous wastes are defined in Article 1, paragraphs 1(a) and 1(b), of the Convention as “(a) wastes that belong to any category contained in Annex I, unless they do not possess any of the characteristics contained in Annex III [“List of hazardous characteristics”]; and (b) wastes that are not covered under paragraph 1(a) but are defined as, or considered to be, hazardous wastes by the domestic legislation of the Party of export, import or transit.” The definition of hazardous waste therefore incorporates domestic law such that material regarded as a hazardous waste in one country but not another is defined as hazardous waste under the Convention. The Convention also requires that parties inform the other parties, through the Secretariat of the Convention, of their national definitions (Article 3). Providing detailed and specific information on the national definitions of hazardous waste can promote compliance and avoid ambiguity concerning the applicability of national definitions.

24. To help parties to distinguish hazardous wastes from non-hazardous wastes for the purpose of Article 1, paragraph 1 (a), two annexes have been added to the Convention. Annex VIII lists wastes considered to be hazardous according to Article 1, paragraph 1 (a), of the Convention unless they do not possess any of the characteristics of Annex III (“List of hazardous characteristics”). Annex IX lists wastes that are not covered by Article 1, paragraph 1 (a), unless they contain Annex I material to an extent that causes them to exhibit an Annex III characteristic. Both Annex VIII and Annex IX list various types of e-waste. More information on the distinction between hazardous and non-hazardous e-waste is included in section IV.B of the present guidelines.

III. Guidance on the distinction between waste and non-waste

A. General considerations

25. To determine if used equipment is waste it may be necessary to examine all circumstances, including the history of an item and its proposed fate, on a case-by-case basis. However, there are characteristics of used equipment that are likely to indicate whether or not the equipment is waste.

26. Without prejudice to paragraph 31 below, when the person who arranges the transport of used equipment claims that the transport is or is intended to be a transboundary transport of used equipment for direct reuse, or extended use by the original owner, for the originally intended purpose of the equipment (see paragraph 31 (a) below), or for failure analysis, repair ~~and/or~~ refurbishment (see

⁶ In this connection, the United Nations Recommendations on the Transport of Dangerous Goods (Model Regulations) (~~ECE, 2003a~~ [\(UNECE, 2015](#) – see [annex appendix V](#), [bibliography references](#)) of ~~2003~~2015, or later versions, should be used.

paragraph 31 (b) below), and is not a transport of e-waste, the evidence required in paragraph 31 should be provided or be in place to support this claim upon the request of the authorities (both prior to and during transport).

27. A party wishing not to allow the import or export of used electrical and electronic equipment destined for failure analysis, repair or refurbishment is fully entitled to do so provided that it complies with applicable international, regional and national legal instruments, and it ~~should~~must notify the Secretariat of the Basel Convention ~~of its wishes~~ in accordance with Article 3 (“National definitions of hazardous wastes”) and Article 13 (“Transmission of information”), paragraph 2, of the Convention, as appropriate.

27bis. Used equipment is waste in a country if it is defined as or considered to be waste under the provisions of that country’s national legislation . Furthermore, any party wishing to apply criteria in addition to those mentioned in paragraphs 30 and 31, for example in relation to the age or residual lifetime of equipment, obsolete technologies, equipment containing cathode ray tubes or the management of residual waste generated during failure analysis, repair or refurbishment, is fully entitled to do so provided that it complies with applicable international, regional and national legal instruments.

28. When a party considers used electrical and electronic equipment to be hazardous waste, both the exporting and importing parties should comply with the Basel Convention provisions, including those pertaining to the prior informed consent (PIC) procedure.

29. Without prejudice to paragraph 31 below, a party wishing to import used electrical and electronic equipment destined for failure analysis, repair or refurbishment should notify the Secretariat of the Basel Convention, ~~in accordance with Articles 3 and 13 paragraph 2,~~ as appropriate, that it does not consider such used equipment to be waste when destined for:

- (a) Facilities that perform such operations in its country; or
- (b) Facilities they have specifically identified, but not to any other facilities.

B. Situations where used equipment should normally be considered waste, or not be considered waste

~~Used equipment is waste in a country if it is defined as or considered to be waste under the provisions of that country’s national legislation.~~30. Without prejudice to paragraph 31, used equipment should normally be considered waste if:

- (a) The equipment is destined for disposal or recycling, instead of failure analysis or reuse, or its fate is uncertain;
- (b) The equipment is not complete - essential parts are missing and the equipment cannot perform its key functions;
- (c) The equipment shows a defect that materially affects its functionality and fails relevant functionality tests;
- (d) The equipment shows physical damage that impairs its functionality or safety, as defined in relevant standards, and cannot be repaired at a reasonable cost;
- (e) The protection against damage during transport, loading and unloading operations is inappropriate, e.g., the packaging or stacking of the load is insufficient;
- (f) The equipment is particularly worn or damaged in appearance and its appearance reduces its marketability;
- (g) The equipment
 - ~~- has among its constituent part(s) a hazardous~~ components/component that are, or
 - ~~- contains hazardous substances to an extent that the equipment~~
 - ~~-is~~ required to be disposed of under national legislation or are, is prohibited to be exported or ~~are~~is prohibited for use in such equipment under national legislation;⁷

⁷ For instance, asbestos, PCBs and CFCs, whose use is phased out or prohibited for certain applications under specific multilateral environmental agreements or in the national legislation of certain countries.

specific multilateral environmental agreements and relevant international standards and guidelines.⁸

~~(e)(h)~~ There is no regular market for the equipment ~~to be reused, including where the equipment contains a cathode ray tube, except when there is a regular market for equipment for professional use containing a cathode ray tube.~~

~~(i)~~ The equipment is destined for disassembly and cannibalization (to gain spare parts); or

~~(j)~~ The price paid for the equipment is significantly lower than would be expected for fully functional equipment intended for reuse.

31. Used equipment should normally not be considered waste:

(a) When it is not destined for any of the operations listed in Annex IV of the Convention (recovery or disposal operations) and it is destined for **direct reuse, or extended use by the original owner** for the purpose for which it was originally intended and the following is provided or is in place both prior to and during transport:

- (i) A copy of the invoice and contract relating to the sale and/or transfer of ownership of the used equipment, and documentation accompanying the equipment in accordance with paragraph ~~40 and appendix II below, including, *inter alia*, a signed declaration that indicates that the equipment has been tested and is destined for direct reuse and fully functional, and information on its future user or, where this is not possible, its retailer or distributor~~^{32 and 40 and appendix II below};
- (ii) Evidence of evaluation or testing⁹ in the form of a copy of records (certificate of testing – proof of functionality) on every item within the shipment and a protocol containing all recorded information (see section III.C below);
- (iii) A declaration made by the person who arranges the transport of the equipment that none of the equipment within the shipment is defined as or is considered to be waste in any of the countries involved in the transport (countries of export and import and, if applicable, countries of transit);
- (iv) ~~(iv)~~ — Each piece of equipment is individually protected against damage and to prevent hazards during transportation, loading and unloading, in particular through sufficient packaging and stacking of the load.

(b) When the person who arranges the transport of the used equipment claims that the equipment is destined for **failure analysis, or for repair ~~and/or~~ refurbishment** with the intention of reuse, or extended use by the original owner, for its originally intended purpose, provided that the criteria set out in sub-paragraphs (a) (iii) and (a) (iv) of paragraph 31 above and all of the following conditions are met:

- (i) The documentation described in paragraph 32 and appendix III below accompanies the equipment;
- (ii) A valid contract¹⁰ exists between the person who arranges the transport and the legal representative of the facility where the equipment is to be repaired or refurbished or undergo failure analysis. The contract should contain a minimum set of provisions, including the following:
 - a. The intention of the transboundary transport (failure analysis, repair or refurbishment);
 - b. Provisions ~~on adherence to the principles of ESM for the treatment of~~ ensure that any residual hazardous waste generated through the failure analysis, repair or refurbishment activities is managed in an environmentally sound manner, either in the country where the facility is located or in another country (see first sentence of Article 4(8)¹¹) and a

⁸ For instance, asbestos, POPs, mercury and ozone depleting substances.

⁹ Testing of used equipment should be performed before shipment in the country of export.

¹⁰ Or equivalent document, in cases where there is no change of ownership of the equipment.

¹¹ “Each Party shall require that hazardous wastes or other wastes, to be exported, are managed in an environmentally sound manner in the State of import or elsewhere.”

provision to allocate responsibility for such environmentally sound waste management;

- c. A provision stating the responsibility of the person who arranges the transport to comply with applicable national legislation and international rules, standards and Basel Convention guidelines. To ensure such compliance, the following provisions ~~d. and e. immediately below~~ should be included~~;~~:

- A provision allocating responsibility to specific persons throughout the whole process, from export until the equipment is either analysed or repaired or refurbished to be fully functional, including cases where the equipment is not accepted by a facility and has to be taken back;

- A provision requiring the facility to provide the person who arranged the transport with a feedback report on the failure analysis, repair or refurbishment activities that were performed on the equipment and on the management of any residual hazardous waste that may have been generated from such activities. If appropriate, the contract may include the possibility of a review of the feedback report by the person who arranged the transport, or by a third party.

32. The documentation accompanying a shipment of used equipment falling under paragraph 31 ~~(a)~~ should contain the following information ~~referred to in:~~

~~(a) For both~~ paragraphs 31-(a) and ~~40. The documentation accompanying a shipment of used equipment falling under paragraph 31-(b) should include the recommended form contained in appendix III to the present guidelines and provide the following information:¹²:~~

- (i) Name (including contact details) of the person who arranges the transport ~~and of the person who receives the shipment at the receiving facility;~~
- (ii) ~~(b)~~ Description of the equipment (e.g., name);
- (iii) Name of the producer, if available;
- (iv) Identification number, if applicable and/or if available;
- (v) Year of production, if available;
- (vi) Year of earlier repair or refurbishment and kind of repair or refurbishment (optional);
- (vii) Under warranty (yes/no) and if yes, remaining duration of warranty ;
- ~~(iii)~~(viii) Quantity of equipment;
- (d) ~~—~~ Purpose of the transboundary transport (e.g., failure analysis, repair, refurbishment)
- ~~(iv)~~(ix) Starting date of the transport;
- ~~(v)~~(x) Countries concerned;
- (xi) Signed declaration made in accordance with paragraph 31 (a) (iii) above and that he/she will provide additional information to authorities upon request.

(b) For paragraph 31(a) the information referred to in paragraph 40 and, in addition to subparagraph (a) above, the following:

- (i) Name (including contact details) of the company responsible for evidence of functionality (if different than person who arranges for the transport);

¹² Insofar as the information (except for that described in subparagraph (c) of paragraph 32) relating to a single shipment is identical for all equipment in that shipment, a single form may be used to provide such information.

(ii) Name (including contact details) of the user or, where this is not possible, the retailer or distributor

(iii) Date of functionality testing;

(iv) Kind of tests performed and results of test;

(v) Signed declaration that indicates that the equipment has been tested and is destined for direct reuse and fully functional;

(c) For paragraph 31(b), in addition to subparagraph (a) above, the following:

(i) Name (including contact details) of the receiving facility;

(ii) Purpose of the transboundary transport (e.g., failure analysis, repair, refurbishment);

(iii) Signed declaration by the person who has arranged the transport of the equipment affirming the existence of a contract fulfilling the requirements specified in paragraph 31(b) (ii) ~~and that he/she will provide additional information to authorities upon request, and a declaration made in accordance with paragraph 31 (a) (iii) above.~~

32bis. For the documentation accompanying a shipment of used equipment falling under paragraph 31 (a) and (b), appendix II and III to the present guidelines, respectively, contain recommended forms¹³.

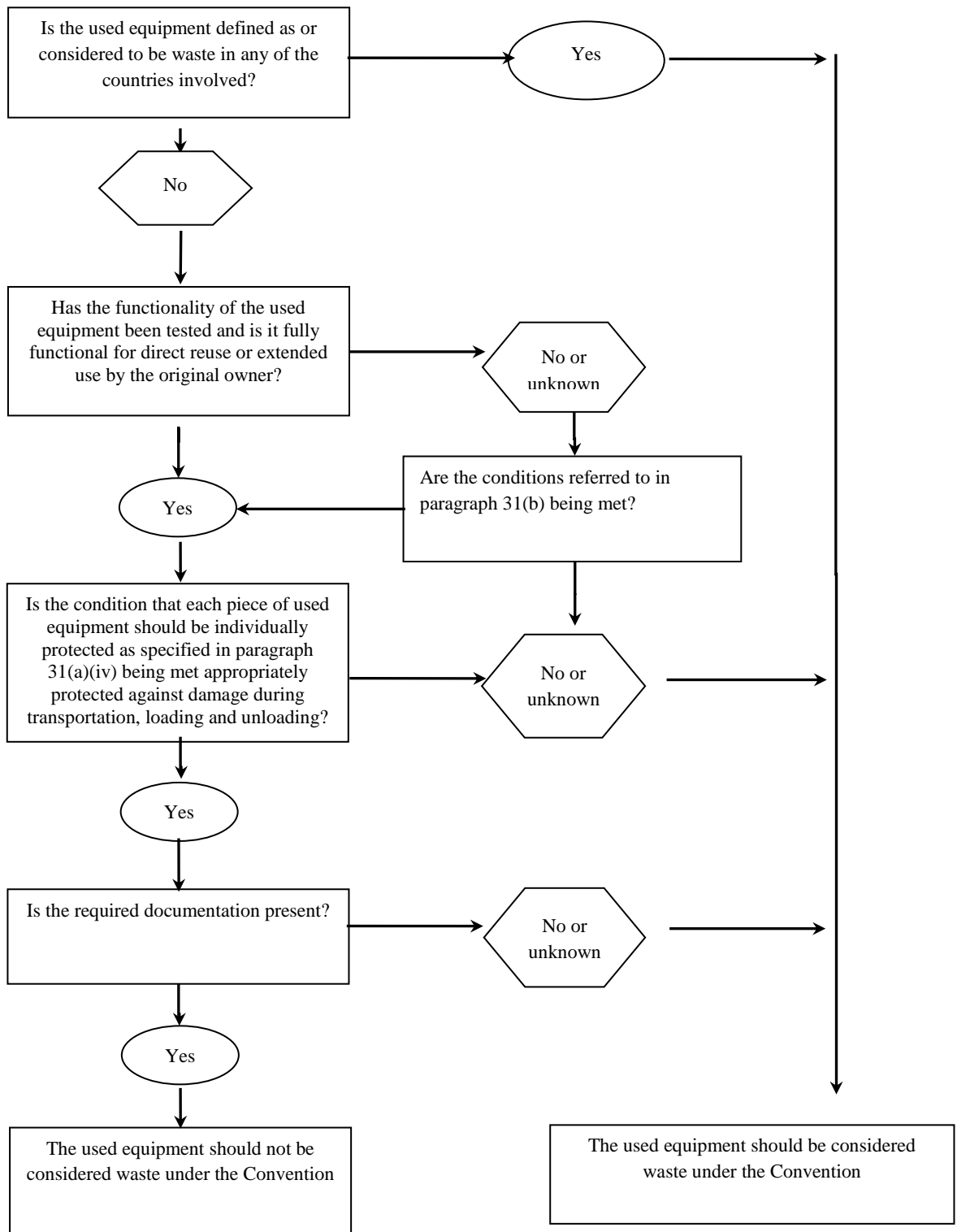
33. Upon receipt of the shipment, the receiving facility should provide a signed declaration of receipt.

34. Persons who arrange the transport should retain the documentation referred to in paragraphs 32-33 for a period of one year following the date a transboundary transport commences.

35. Figure 1 summarizes the decision steps described in this section.

¹³ Insofar as the information relating to a single shipment is identical for all equipment in that shipment, a single form may be used to provide such information.

Figure 1: Decision steps described in paragraph 31(a) and (b)



C. Evaluation and testing of used equipment destined for direct reuse

36. -When preparing the transboundary transport of used equipment destined for direct reuse covered by paragraph 31 (a), rather than of e-waste, the person who arranges for the transport should take the following steps:

Step 1: evaluation and testing

37. The tests to be conducted depend on the kind of equipment in question. Equipment functionality should be tested and the presence of hazardous substances or components in the equipment should be evaluated. The completion of a visual inspection of the equipment without testing its functionality is unlikely to be sufficient. For most of equipment, a functionality test of key functions is sufficient. Section IV.B of the present guidelines provides guidance on evaluation for the presence of hazardous substances and components. A list of examples of functionality tests for certain categories of used equipment is provided in appendix IV to the present document.

38. Testing should be conducted by a qualified, certified or trained technician.

Step 2: recording

39. Results of evaluation and testing should be recorded. The record should contain the following information:

- (a) Name of the item;
- (b) Name of the producer (if available);
- (c) Identification number of the item (type No.), where applicable;
- (d) Year of production (if available);
- (e) Name and address of the company responsible for evidence of functionality;
- (f) Result of tests described in step 1 (e.g., naming of defective parts and defects or indication of full functionality), including date of the functionality test;
- (g) Kind of tests performed;
- (h) Signed declaration by the company responsible for evidence of functionality.

40. The record should accompany the shipment and be fixed securely but not permanently either on the used equipment itself (if not packaged) or on the packaging so that it can be read without unpacking the equipment. A recommended form for recording the results of evaluation and testing, including the declaration referred to in paragraph ~~31(a)(i)~~-32(b)(iii) above, is contained in appendix II to the present guidelines.

IV. Guidance on transboundary movements of e-waste

A. General considerations

41. When e-waste is considered to be hazardous waste according to Article 1, paragraph 1 (a), of the Convention, or to national legislation (Article 1, paragraph 1 (b)), national import or export prohibitions must be respected. When no such national prohibitions exist, the control procedure described in section II. B of the present guidelines applies. For e-waste that is not considered to be hazardous, the Basel Convention does not contain a specific procedure. However, some parties have developed procedures to deal with such cases, such as those applicable to transboundary movements of “green-listed” waste under European Union legislation,¹⁴ or the procedure for pre-movement inspection of recycling materials applicable in China.¹⁵

42. In cases where the competent authority of a country involved in a transboundary movement of e-waste considers a specific item to be hazardous waste according to that country’s national law, while

¹⁴ Regulation (EC) No. 1013/2006 on shipments of waste and Regulation (EC) No. 1418/2007 concerning the export for recovery of certain waste listed in annex III or IIIA to Regulation (EC) No. 1013/2006 to certain countries to which the OECD decision on the control of transboundary movements of wastes does not apply (see: <http://ec.europa.eu/environment/waste/shipments/legis.htm>).

¹⁵ Pre-movement inspections for recycling materials are established by the General Administration of Quality Supervision, Inspection and Quarantine of China (AQSIQ). Information on the procedure can be found on the website of the China Certification & Inspection Group (CCIC), which is authorized to handle this procedure in various countries worldwide, e.g., in Europe, from: <http://www.ccic-europe.com>.

other authorities would not, the control procedure for hazardous waste described in Article 6, paragraph 5 of the Convention would apply. The same mechanism is suggested in cases where there are differences of opinion between competent authorities as to whether or not a piece of equipment constitutes waste. In those cases, the procedures applicable to transboundary movements of waste would apply. If this approach is taken and the applicable procedures are not followed, the movement would be regarded as illegal.

43. Some parties may consider used equipment destined for failure analysis, repair or refurbishment to be waste, while others may not. In accordance with the principles of the Convention, if one of the countries concerned considers used equipment to be waste the procedures on transboundary movement of e-waste, as indicated in paragraph 42 above, should be followed. Note that in some cases, the decision to classify used equipment destined for failure analysis, repair or refurbishment as hazardous waste could result in the imposition of a ban on the export or import of such equipment under national legislation or pursuant to the Convention's prohibition on trade with non-parties.

B. Distinction between hazardous waste and non-hazardous waste

44. E-waste is included in Annex VIII to the Convention under the following entry for hazardous waste:

“A1180 Waste electrical and electronic assemblies or scrap¹⁶ containing components such as accumulators and other batteries included on list A, mercury-switches, glass from cathode-ray tubes and other activated glass and PCB-capacitors, or contaminated with Annex I constituents (e.g., cadmium, mercury, lead, polychlorinated biphenyl) to an extent that they possess any of the characteristics contained in Annex III (note the related entry on list B B1110).”¹⁷

45. E-waste is also included in Annex IX to the Convention under the following entry for non-hazardous waste¹⁸:

“B1110 Electrical and electronic assemblies:

- Electronic assemblies consisting only of metals or alloys;
- Waste electrical and electronic assemblies or scrap¹⁹ (including printed circuit boards) not containing components such as accumulators and other batteries included on list A, mercury-switches, glass from cathode-ray tubes and other activated glass and PCB-capacitors, or not contaminated with Annex I constituents (e.g., cadmium, mercury, lead, polychlorinated biphenyl) or from which these have been removed, to an extent that they do not possess any of the characteristics contained in Annex III (note the related entry on list A A1180);
- Electrical and electronic assemblies (including printed circuit boards, electronic components and wires) destined for direct reuse,²⁰ and not for recycling or final disposal.”²¹

46. Equipment will often contain hazardous components or substances, examples of which are listed in entry A1180 of Annex VIII. E-waste containing such components or substances may qualify as hazardous waste if the waste exhibits the hazardous characteristics listed in Annex III. However, the presence of such a component or substance in equipment should not necessarily cause the equipment as a whole to be deemed hazardous waste under the Convention.

47. E-waste should therefore be presumed to be hazardous waste unless it can be shown either that it does not exhibit hazardous characteristics or that it does not contain hazardous components or substances, in particular:²²

¹⁶ This entry does not include scrap assemblies from electric power generation.

¹⁷ PCBs are at a concentration level of 50 mg/kg or more.

¹⁸ [Entry B1110 is under review in accordance with decision BC-13/2.](#)

¹⁹ This entry does not include scrap from electrical power generation.

²⁰ Reuse can include repair, refurbishment or upgrading, but not major reassembly.

²¹ In some countries these materials, when destined for direct reuse, are not considered wastes.

²² The hazardous components and constituents listed in this paragraph are provided as examples; the list provided here is therefore not exhaustive.

(a) Lead-containing glass from cathode ray tubes (CRTs) and imaging lenses, which fall under Annex VIII entries A1180 and A2010 (“glass from cathode ray tubes and other activated glass”) and Annex I category Y31 (“Lead; lead compounds”) and are likely to possess Annex III hazardous characteristics H6.1, H11, H12 and H13;

(b) Nickel-cadmium batteries and batteries containing mercury, which fall under Annex VIII entry A1170 (“unsorted waste batteries...”) and Annex I categories Y26 (“Cadmium; cadmium compounds”) and Y29 (“Mercury, mercury compounds”) and are likely to possess Annex III hazardous characteristics H6.1, H11, H12 and H13;

(c) Selenium drums, which fall under Annex VIII entry A1020 (“selenium; selenium compounds”) and Annex I category Y25 (“Selenium; selenium compounds”) and are likely to possess Annex III hazardous characteristics H6.1, H11, H12 and H13;

(d) Printed circuit boards, which fall under Annex VIII entries A1180 (“waste electrical and electronic assemblies...”) and A1020 (“antimony; antimony compounds” and “beryllium; beryllium compounds”) and contain brominated compounds and antimony oxides as flame retardants, lead in solder and beryllium in copper alloy connectors. They also fall under Annex I categories Y31 (“Lead; lead compounds”), Y20 (“Beryllium, beryllium compounds”), Y27 (“Antimony, antimony compounds”) and Y45 (“organohalogen compounds other than substances referred to” elsewhere in Annex I) and are likely to possess Annex III hazardous characteristics H6.1, H11, H12 and H13;

(e) Fluorescent tubes and backlight lamps from liquid crystal displays (LCD), which contain mercury and therefore fall under Annex VIII entry A1030 (“Mercury; mercury compounds”) and Annex I category Y29 (“Mercury; mercury compounds”) and are likely to possess Annex III hazardous characteristics H6.1, H11, H12 and H13;

(f) Plastic components containing brominated flame retardants (BFRs), in particular BFRs that are persistent organic pollutants according to the Stockholm Convention, may in some cases fall under Annex VIII entry A3180 (“Wastes, substances and articles containing, consisting of or contaminated with polychlorinated biphenyl (PCB), polychlorinated terphenyl (PCT), polychlorinated naphthalene (PCN) or polybrominated biphenyl (PBB), or any other polybrominated analogues of these compounds, at a concentration of 50 mg/kg or more”). In general, wastes containing BFRs also fall under Annex I category Y45 (“organohalogen compounds other than substances referred to” elsewhere in Annex I) and, if antimony compounds are used as synergists of the BFRs, under category Y27 (“Antimony, antimony compounds”). Depending on the concentration and the chemical properties of the BFRs and their synergists, plastic components containing BFRs may possess Annex III hazardous characteristics H6.1, H11, H12 and H13.

(g) Other components containing or contaminated with mercury, such as mercury switches, contacts and thermometers, which fall under Annex VIII entries A1010, A1030 and A1180 and Annex I category Y29 (“Mercury; mercury compounds”) and are likely to possess Annex III hazardous characteristics H6.1, H11, H12 and H13;

(h) Oils/liquids, which fall under Annex VIII entry A4060 (“Waste oil/water, hydrocarbons/water mixtures, emulsions”) and Annex I categories Y8 (“Waste mineral oils unfit for their originally intended use”) and Y9 (“Waste oil/water, hydrocarbons/water mixtures, emulsions”) and are likely to possess hazardous characteristics H3, H11, H12 and H13; and

(i) Components containing asbestos, such as wires, cooking stoves and heaters, which fall under Annex VIII entry A2050 (“Waste asbestos (dusts and fibres)”) and Annex I category Y36 (“Asbestos (dust and fibres)”) and are likely to possess Annex III hazardous characteristic H11.

48. Further guidance on and examples of hazardous and non-hazardous equipment and hazardous components that may be found in electrical and electronic equipment are contained in appendix IV to the present document.

V. Guidance on the enforcement of provisions regarding transboundary movements of e-waste and used equipment

49. Inspections should be undertaken by competent bodies of State authorities (e.g., police, customs and environmental inspectors) at facilities and during movements.

50. Persons who arrange the transport of used equipment should ensure that the equipment is accompanied by appropriate documentation in accordance with paragraphs 31, 32, 39, 40 and 51 of the present guidelines and that it is appropriately protected against damage during transportation, loading and unloading, in particular through sufficient packaging or appropriate stacking of the load in order to

demonstrate that the items concerned are not e-waste. Sample photographs of illegal shipments²³ and examples of documentation could be used and/or developed to help educate officers at borders, ports and other inspection points on how to identify illegal shipments.

51. For practical reasons of control, every load of used equipment should also be accompanied by a declaration of the liable person affirming his/her responsibility and by the relevant transport document, e.g., a waybill or a CMR document,²⁴ where applicable. The transport document should contain a description of the goods transported using the Harmonized Commodity Description and Coding System (normally referred to as the “Harmonized System”) developed by the World Customs Organization (WCO).

52. In the absence of proof that an item is used equipment and not e-waste through appropriate documentation issued in accordance with paragraphs 31, 32, 39, 40 and 51 of the present guidelines and appropriate protection against damage during transportation, loading and unloading, in particular through sufficient packaging and appropriate stacking of the load by the person who arranges the transport, the relevant State authorities (e.g., customs, police or environmental inspectors) should consider the item to be potentially hazardous e-waste and, in the absence of consent provided in accordance with the requirements of the Basel Convention, should presume that the export constitutes a case of illegal traffic under Article 9 of the Convention. In such circumstances, the relevant competent authorities must comply with the provisions of Article 9. The parties consider that illegal traffic in hazardous wastes or other wastes is criminal (Article 4, paragraph 3, of the Convention).

53. When e-waste is exported as hazardous waste, the documentation required under the control procedure of the Convention should accompany each shipment.

54. The Secretariat of the Basel Convention has cooperated with WCO to create a table providing an overview of which codes of the Harmonized System contain materials found in annexes VIII and IX to the Basel Convention.²⁵ This table can facilitate a comparison of CMR documents with the documents that should accompany shipments of used equipment or e-waste in accordance with the procedures described in the present guidelines. While the table may be a useful tool, transboundary shipments should be evaluated on a case-by-case basis and hazardous waste determinations should be based on all available information.

55. Health and safety issues and potential risks for enforcement agents (such as customs officers) are important for any inspection of shipments of e-waste or used equipment. Enforcement officers should have specific training before conducting such inspections. Particular care should be applied when opening containers. In particular, if the shipment consists of waste, the items may not have been stacked in a stable way and items may fall out of the container when the container is opened for inspection. The load may also contain hazardous substances that could be released when the load is inspected. Further information regarding health and safety aspects of inspections is contained in appendix IV to the present document.

VI. **Guidance related to facilities for conducting failure analysis, repair and refurbishment**

56. At facilities receiving used equipment that is not waste and is intended for failure analysis, repair or refurbishment, inspections should be undertaken to verify if the relevant national provisions

²³ Examples of sample photographs include manuals developed in Austria that are available at: http://www.bundesabfallwirtschaftsplan.at/dms/bawp/Handbuch_Leitfaden_Abfall_versus_Gebrauchtware_de-eng_end_2014_06_24_eBook/Handbuch%20Leitfaden%20Abfall%20versus%20Gebrauchtware%20-%20de-eng_end_2014_06_24_eBook.pdf https://www.wko.at/branchen/information-consulting/entsorgungs-ressourcenmanagement/Handbuch_Leitfaden_Abfall_versus_Gebrauchtware_-_de-eng_e_2.pdf (in English and German) and http://www.bundesabfallwirtschaftsplan.at/dms/bawp/Manual_Abfallverbringung_2012neu/Manual%20Abfallverbringung%202012neu.pdf <https://www.bmmt.gv.at/dam/jcr:93f32c3f-a978-44fe-8f47-c8a71848b56b/Manual%20Abfallverbringung%202012%20neu%20-%20Web.pdf> (only in German).

²⁴ Document containing the information required under the Convention on the Contract for the International Carriage of Goods by Road (CMR Convention). Although the use of a particular form to present the information is not mandatory, it is recommended that the parties use standard CMR forms to facilitate communication with inspection authorities in case of a control.

²⁵ The latest version of the table can be found on the WCO website at: <http://www.wcoomd.org/en/topics/nomenclature/instrument-and-tools/interconnection-table.aspx> <http://www.wcoomd.org/en/topics/nomenclature/instrument-and-tools/interconnection-table.aspx>. The table contains correlations between the WCO Harmonized System codes and the products covered by a number of international conventions, including the Basel Convention.

for environmental protection, including waste-related provisions, and any environmental permits or licenses have been followed. The *Guideline on environmentally sound testing, refurbishment and repair of used computing equipment* developed under PACE (PACE, 2011a) can be used by countries to help ensure that any such operation is environmentally sound. In addition, compliance with the conditions set out in paragraph 31 (b) of the present guidelines should be checked.

56bis. It is recommended to facilities receiving used equipment that is not waste and is intended for failure analysis, repair or refurbishment to, as appropriate, include provisions in the contract with the person who arranges the transport that:

(a) Used equipment that was destined for failure analysis, repair or refurbishment, but for which no failure analysis, repair or refurbishment has been conducted and that is still non-waste, is returned to the person who arranges the transport or a facility in another country, and

(b) The waste generated during failure analysis, repair or refurbishment is returned to the person who arranges the transport, or is disposed of in an environmentally sound manner. In case of non-availability of environmentally sound management in the country where the failure analysis, repair or refurbishment was conducted, such waste should be managed in an environmentally sound manner in another country.

56ter. It is recommended, as appropriate, that facilities receiving used equipment that is not waste and is intended for failure analysis, repair or refurbishment require, as part of the contract with the person who arranges the transport or on the basis of applicable national legislation, the person who arranges the transport to ensure that the equipment is returned to the country of export or a facility in another country at their expense, in the case that used equipment did not undergo failure analysis, repair or refurbishment in the country of import.

56quat. A party is fully entitled to require a financial guarantee from facilities receiving used equipment that is not waste and is intended for failure analysis, repair or refurbishment located in their country to cover costs related to environmentally sound management of waste, including for cases of bankruptcy and abandonment. In addition, a party is fully entitled to require a financial guarantee from the person who arranges the transport to cover costs to ensure that used equipment that did not undergo failure analysis, repair or refurbishment in the country of import is returned to the country of export or a facility in another country.

57. For example, some developing countries²⁶ where facilities conduct failure analysis, repair and refurbishment activities have implemented policies that require those facilities to assure that all of the used equipment that they receive will be exported after failure analysis, repair or refurbishment. In addition, in these countries all the waste generated by such activities must be exported²⁷ to facilities that meet ESM standards. These requirements are part of the environmental operating permits of these facilities and assure that the activities of the facilities will not result in unwanted imports of equipment that would need to be managed as e-waste. They also assure that the waste generated by those activities will not burden the national waste management infrastructure of importing countries and will be managed in accordance with ESM standards.

~~VII. Concluding remarks~~

~~58. It is acknowledged that certain issues addressed in the present guidelines require further consideration and that relevant information should be obtained. Appendix V provides an overview of those issues and specific texts that were discussed by the Conference of the Parties at its twelfth meeting but on which no agreement was reached. Pursuant to decision BC 12/5 of the Conference of the Parties, further work will be undertaken on the guidelines in the lead up to the thirteenth meeting of the Conference of the Parties.~~

²⁶ ~~The current example is based on the practices in Malaysia and China.~~

²⁷ In accordance with the provisions of the contract for the shipment.

Appendix I

Glossary of terms

Note: Some of the descriptions and definitions of the terms listed below were developed for the purpose of the present guidelines and should not be considered as having been agreed to internationally. Their purpose is to assist readers to better understand the present guidelines. Insofar as appropriate, the use of these terms has been aligned with terms used in other guidelines and guidance documents developed under the Basel Convention.

Terminology	Description/definition
Basel Convention	Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, adopted on March 22, 1989 and entered into force in 1992.
Component	Element with electrical or electronic functionality designed to be connected together with other components, including by soldering to a printed circuit board, to create an electric or electronic circuit with a particular function (for example, as an amplifier, radio receiver, monitor, hard-drive, motherboard or battery).
Direct reuse	The using again of fully functional equipment that is not waste, for the same purpose for which it was conceived, without the necessity of repair or refurbishment.
Disposal	Any operation specified in Annex IV to the Basel Convention (Article 2, paragraph 4, of the Convention).
Environmentally sound management	Taking all practicable steps to ensure that hazardous wastes or other wastes are managed in a manner that will protect human health and the environment against the adverse effects that may result from such wastes (Article 2, paragraph 8, of the Convention).
Equipment	Electrical and electronic equipment that is dependent on electric currents or electromagnetic fields in order to work properly, including components that can be removed from equipment and can be tested for functionality and either be subsequently directly reused or reused after repair or refurbishment.
<u>Equipment for professional use</u>	<u>Equipment that is designed to be used solely by professional users. Equipment that can be used either by private household or by professional users is not equipment for professional use.</u>
Key function	The essential function of a unit of equipment that will satisfactorily enable the equipment to be used as originally intended.
Failure analysis	Test performed by the original manufacturer or a party on his/her behalf, collecting and analyzing data to determine the cause of a failure. Root cause analysis (RCA) is a particular kind of failure analysis.
Fully functional	Equipment is fully functional if it has been tested and demonstrated to be capable of performing the key functions that it was designed to perform.
Other wastes	Wastes listed in Annex II to the Convention.
Non-waste	A substance or object that does not meet the definition of “waste”.
Person who arranges the transport	The natural or legal person <u>that, if required, submits the customs declaration and is, if required, located in the country of export, and</u> that assumes the responsibility to ensure that the conditions to be met when equipment should normally not be considered waste mentioned in paragraph 31 are met.
Recycling	Relevant operations specified in Annex <u>IV, part B, IVB</u> to the Basel Convention.
Recovery	<u>Relevant</u> <u>Commonly used to refer to</u> operations specified in Annex <u>IV, part B, IVB</u> to the Basel Convention.
Refurbishment	Modification of used equipment to increase or restore its performance and/or functionality or to meet applicable technical standards or regulatory requirements, with the result of making it a fully functional product to be used for a purpose that is at least the one for which it was originally intended, including through such activities as cleaning and data sanitization.

Repair	Fixing a specified fault in used equipment that is a waste or a product and/or replacing defective components of equipment in order to make the equipment a fully functional product to be used for its originally intended purpose.
Reuse	The using again of fully functional equipment that is not waste for the same purpose for which it was conceived, possibly after repair or refurbishment.
Wastes	Substances or objects that are disposed of or are intended to be disposed of or are required to be disposed of by the provisions of national law (Article 2, paragraph 1, of the Basel Convention).
Waste electrical and electronic equipment	Electrical or electronic equipment that is waste, including all components, sub-assemblies and consumables that are part of the equipment at the time the equipment becomes waste.

Appendix II

Information accompanying transboundary transports of used equipment falling under paragraph 31 (a), including on recording the results of evaluation and testing of used equipment

1. Person who arranges the transport (responsible for testing): Name: Address: Contact person: Tel: E-mail:	2. Company responsible for evidence of functionality (if different than person who arranges for the transport): Name: Address: Contact person: Tel: E-mail:	3. <input type="checkbox"/> User or, <u>where this is not possible,</u> <input type="checkbox"/> retailer or <input type="checkbox"/> distributor: Name: Address: Contact person: Tel: E-mail:
<u>4. Countries/States concerned:</u>		
<u>Export/dispatch</u>	<u>Transit</u>	<u>Import/destination</u>
<u>5. Start date of the transport:</u>		
<u>46. Declaration:</u> I, the person who conducted the evaluation and testing, declare that the results of evaluation and testing are complete and correct, to the best of my knowledge. Name: <u>Function:</u> Date: Signature:		
I, the person who arranges the transport of the equipment listed below, hereby declare that prior <u>I am entitled to represent my company and that:</u> <u>a) Prior</u> to export the used equipment listed below was tested and is fully functional. ¹ I confirm that this		

¹ Equipment is “fully functional” if it has been tested and demonstrated to be capable of performing the key functions that it was designed to perform.

b) This equipment is not defined as or considered to be waste in any of the countries involved in the transport and is destined for direct reuse² and not for recovery or disposal operations.

c) A contract according to paragraph 31(a) (i) of the Basel Convention *Technical guidelines on transboundary movements of electrical and electronic waste and used electrical and electronic equipment, in particular regarding the distinction between waste and non-waste under the Basel Convention, is in place.*

d) Upon request from the relevant authorities, I will make available underlying documentation (e.g., contracts or equivalent documents) that can be used to verify the statements contained in subparagraphs (a), (b) and (c) above.

e) The above information is complete and correct, to the best of my knowledge.

Name:

Function:

Date:

Signature:

<u>5. Name</u> <u>7. Description</u> of the <u>item</u> of equipment (e.g. name) ³	<u>68.</u> Name of the producer (if available)	<u>79.</u> Identification number (type No.) (if applicable <u>and/or if</u> <u>available</u>)	<u>810.</u> Year of production (if available)	<u>11.</u> <u>Year of earlier</u> <u>repair or</u> <u>refurbishment and</u> <u>kind of repair or</u> <u>refurbishment</u> <u>(optional);</u>	<u>12.-</u> <u>Under warranty</u> <u>(yes/no) and if yes,</u> <u>remaining duration of</u> <u>warranty</u>	<u>13.</u> <u>Quantity of</u> <u>equipment</u>	<u>914.</u> Date of functionality testing	<u>1015.</u> Kind of tests performed and results of test (e.g. indication of full functionality or indication of defective parts and defect) ⁴

² The using again of fully functional equipment that is not waste for the same purpose for which it was conceived without the necessity of repair or refurbishment.

³ List the equipment for which the information in the boxes 1 to 3 is the same and that is intended to be moved together, and identify the names of the equipment, such as PC, refrigerator, printer, TV, etc.

⁴ Attach details if necessary.

Appendix III

Information accompanying transboundary transports of used equipment falling under paragraph 31 (b)

1. Person who arranges the transport Name: Address: Contact person: Tel.: Fax: E-mail:		2. Receiving facility Name: Address: Contact person: Tel.: Fax: E-mail:		3. Description<u>Purpose</u> of the equipment (e.g. name)<u>transport</u>:¹ <input type="checkbox"/> <u>Failure analysis</u> <input type="checkbox"/> <u>Repair</u> <input type="checkbox"/> <u>Refurbishment</u>	
4. Purpose of the transport:[‡] <input type="checkbox"/> <u>Failure analysis</u> <input type="checkbox"/> <u>Repair</u> <input type="checkbox"/> <u>Refurbishment</u>		5 4. Start date of the transport:			
6. Actual quantity: 65. Countries/States concerned:					
7. Countries/States concerned:<u>Export/dispatch</u>		<u>Transit</u>		<u>Import/destination</u>	
67. Declaration of the person who arranges the transport of the equipment: <u>I declare that I am entitled to represent my company and that:</u> a) <u>The equipment in this transport is equipment that is not defined as or considered to be waste in any of the countries involved in the transport.</u> b) <u>A contract fulfilling the conditions set out in paragraph 31(b) (ii) of the Basel Convention <i>Technical guidelines on transboundary movements of electrical and electronic waste and used electrical and electronic equipment, in particular regarding the distinction between waste and non-waste under the Basel Convention</i>, is in place.</u> c) <u>Upon request from the relevant authorities, I will make available underlying documentation (e.g., contracts or equivalent documents) that can be used to verify the statements contained in subparagraphs (a) and (b) above.</u> d) <u>The above information is complete and correct, to the best of my knowledge.</u>				<u>Transit</u>	
				<u>Import/destination</u>	

¹ If multiple options apply to the equipment, please indicate them all.

[‡] If multiple options apply to the equipment, please indicate them all.

Name: _____ Function: _____ Date: _____ Signature: Export/dispatch												
<p>87. Description of the equipment (e.g. name)²⁸ Declaration of the person who arranges the transport of the equipment: I declare that I am entitled to represent my company and that:</p> <p>a) The equipment in this transport is equipment that is not defined as or considered to be waste in any of the countries involved in the transport. b) A contract fulfilling the</p>							<p>8. Name of the producer (if available)</p>	<p>9. Identification number (type No.) (if applicable and/ or if available)</p>	<p>10. Year of production (if available)</p>	<p>11. Year of earlier repair or refurbishment and kind of repair or refurbishment (optional);</p>	<p>12. Under warranty (yes/no) and if yes, remaining duration of warranty</p>	<p>13. Quantity of equipment</p>

²⁸ List the equipment for which the information in the boxes 1 to 3 is the same and that is intended to be moved together, and identify the names of the equipment, such as PC, refrigerator, printer, TV, etc.

<p>conditions set out in paragraph 31(b) (ii) of the Basel Convention <i>Technical guidelines on transboundary movements of electrical and electronic waste and used electrical and electronic equipment, in particular regarding the distinction between waste and non-waste under the Basel Convention, is in place.</i></p> <p>e) Upon request from the relevant authorities, I will make available underlying documentation (e.g., contracts or equivalent documents) that can be used to verify the statements</p>						
---	--	--	--	--	--	--

<p>contained in subparagraphs (a) and (b) above.</p> <p>d) — The above information is complete and correct, to the best of my knowledge.</p>						
<p>TO BE COMPLETED BY THE RECEIVING FACILITY</p>						
<p>914. Movement received at the receiving facility: <input type="checkbox"/> Quantity/volume received:</p> <p>Name: _____ Date: _____ Signature: _____</p>						

Appendix IV

Reference materials

The present appendix contains references to information on functionality testing for certain categories of used equipment (paragraph 37), hazardous and non-hazardous equipment and hazardous components that can be found in such equipment (paragraph 47), and information regarding health and safety aspects of inspections (paragraph 55).

1. Functionality testing or evaluation

This section contains references to functionality tests of electrical and electronic equipment and related procedures. The examples are not meant to be exhaustive but illustrate procedures as they are applied by some parties or recommended in other guidance documents developed under the Basel Convention. Testing procedures and protocols for other categories of used equipment are not yet available.

References from parties

Australia

Criteria for the export and import of used electronic equipment (DEH, 2005). Available at: <http://pandora.nla.gov.au/pan/51666/20050902-0000/www.deh.gov.au/settlements/publications/chemicals/hazardous-waste/electronic-paper.html>.

Annex B of the document contains parameters that may be used when testing the functionality of certain types of equipment.

European Union

~~Revised~~ Correspondents' Guidelines No. 1 on shipments of waste electrical and electronic equipment (WEEE) (~~2007~~2017). Available from: <http://ec.europa.eu/environment/waste/shipments/guidance.htm>.

Appendix 1 to these guidelines contains parameters that may be used when testing the functionality of certain types of equipment.

Malaysia

Guidelines for the classification of used electrical and electronic equipment in Malaysia. (DOE, 2008). Available at: http://www.doe.gov.my/portal/wp-content/uploads/2010/07/ELECTRICAL_AND_ELECTRONIC_EQUIPMENTIN_MALAYSIA.pdf.

Paragraph 7 of these guidelines contains parameters that may be used when testing functionality of certain types of equipment.

Norway

A guide for exporters of used goods, Norwegian Pollution Control Authority (2009). Available at: <http://www.miljodirektoratet.no/old/klif/publikasjoner/2516/ta2516.pdf>.

Example images of criteria on pages 4-8 can be used when evaluating the functionality of used goods.

References from guidance documents produced under the Basel Convention

MPPI - Mobile phones

The guidance document on the environmentally sound management of used and end-of-life mobile phones adopted by the Conference of the Parties at its tenth session (UNEP/CHW.10/INF/27/Rev.1) contains a number of proposed tests on functionality for mobile phones in section 5.2.1.4.

PACE - Computing equipment

The ~~revised~~ guidance document on environmentally sound management of used and end-of-life computing equipment adopted at the eleventh session of the Conference of the Parties (UNEP/CHW.~~11/6/Add.13~~13/INF/31/Rev.1, ~~annex I~~) contains in appendix ~~IV~~ a set of functionality tests for used computing equipment.

PACE - Laptop batteries

The ~~revised~~ guidance document on environmentally sound management of used and end-of-life computing equipment that was adopted at the eleventh session of the Conference of the Parties (UNEP/CHW.14/6/Add.13/INF/31/Rev.1, [annex I](#)) contains in appendix ~~VI~~ a ~~set of functionality test testing methods~~ for laptop batteries.

Basel Convention Regional Centre for South-East Asia (BCRC-SEA)

The annexes to the Technical Guidelines on the Reduce, Reuse, Recycle (3R) of End-of-Life Electronic Products developed by BCRC-SEA contain a number of functionality tests for different types of equipment. The annexes provide for specific tests for refrigeration systems, twin-tub washing machines, automatic washing machines, TVs, audio systems and PCs. The guidelines are available from: <http://www.bcrc-sea.org/?content=publication&cat=2>.

2. Hazardous and non-hazardous equipment and hazardous components that can be found in such equipment

Section IV.B of the present guidelines contains information about the distinction between hazardous and non-hazardous e-waste. Additional guidance and examples of hazardous and non-hazardous equipment and on hazardous components that can be found in equipment can be found in the following reference materials:

Switzerland

~~The e-waste guide developed as part of the “Global Knowledge Partnerships in e-Waste Recycling” programme, initiated by the Swiss State Secretariat for Economic Affairs (SECO) and implemented by the Swiss Federal Laboratories for Materials Science and Technology (EMPA) contains a section on hazardous substances in e-waste, which is available at: <http://ewasteguide.info/node/219>.~~

Exporting consumer goods: Second-hand articles or waste?”, No UD-1042-E, 2nd updated edition, April 2016. Federal Office for the Environment (FOEN) Switzerland. www.bafu.admin.ch → waste: <https://www.bafu.admin.ch/bafu/en/home/topics/waste/publicationsstudies/publications/exporting-consumer-goods.html>

Sweden

See “Recycling and disposal of electronic waste – health hazards and environmental impacts”, report No. 6417, March 2011, Swedish Environmental Protection Agency: <http://www.naturvardsverket.se/Documents/publikationer6400/978-91-620-6417-4.pdf>.

3. Health and safety aspects of inspections

Section V of the present guidelines provides information for controls of transboundary movements of used equipment and e-waste. One of the issues to be taken into account when carrying out such controls is the health and safety of enforcement agents. Additional information on how to take these issues into account can be found in the following reference materials:

Standardization bodies

OHSAS 18001 Standards for Occupational Health and Safety Management Systems. The standards are available from national standards institutions, such as the British Standards Institution at: www.bsigroup.com.

International Labour Organization (ILO)

The ILO guidelines on occupational safety and health management systems (ILO-OSH 2001) are available at: http://www.ilo.org/safework/info/standards-and-instruments/WCMS_107727/lang--en/index.htm.

ILO has also developed an electronic tool kit on occupational health and safety that includes standards and advice. It is available for a fee of \$395 from: <http://www.ohsas-18001-occupational-health-and-safety.com/ohsas-18001-kit.htm>.

Basel Convention Regional Centre for South-East Asia (BCRC-SEA)

A guidance on occupational safety and health aspects specifically developed as guidance for hazardous materials/waste inspection, titled “Panduan Singkat Pengelolaan Limbah B3 Dalam Rangka Pelaksanaan Konvensi Basel - Segi Keselamatan Dalam Inspeksi Bahan Berbahaya” (“Brief guidance for hazardous waste management under the Basel Convention implementation – safety aspects in

hazardous materials inspection”), was written by D. Wardhana Hasanuddin Suraadiningrat, former Senior Technical Advisor to the BCRC-SEA, in 2008. Because the guidance was prepared for the Directorate General of Customs and Excise of Indonesia, it was written in Bahasa Indonesia (Malay language) and may thus need translation. For further information, contact baseljakarta@bcrc-sea.org.

Ireland

Ireland’s Health and Safety Authority provides advice through an online directory on how to develop an occupational health and safety (OHS) management system for a number of different occupations and industries. While waste management is not yet included in the directory, the site contains some useful videos covering elements of an OHS system (as per Irish legislation) and risk assessment, which can be viewed at:

<http://vimeo.com/19383449> (on the online system)

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

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

The guidance on risk assessment and the development of safety policy and a safety statement could be adapted for use by enforcement agents.

United Kingdom of Great Britain and Northern Ireland

The United Kingdom Health and Safety Executive has developed online guidance on occupational health and safety in the waste industry specifically pertaining to waste electrical and electronic equipment. Information is available from:

<http://www.hse.gov.uk/waste/index.htm>.

<http://www.hse.gov.uk/waste/waste-electrical.htm>.

Appendix V

Issues for further work

It is acknowledged that certain issues addressed in the present guidelines require further consideration and that relevant information should be obtained. The present appendix contains an overview of the issues and specific texts that were discussed by the Conference of the Parties at its twelfth meeting (COP-12) but on which no agreement was reached. Further work will be undertaken on the guidelines in accordance with COP decision BC 12/5.

The tables presented below include the relevant texts from the discussions during COP-12 and references to the parts of the guidelines to which those texts relate.

1. Party notifications as per paragraphs 27 and 29

Paragraphs 27 and 29 of the present guidelines address the fact that countries may or may not wish to allow imports or exports of used electrical and electronic equipment destined for failure analysis, repair or refurbishment. The paragraphs indicate that parties should notify the Secretariat of the Basel Convention in accordance with Articles 3 and 13, paragraph 2, as appropriate, of their wishes on that issue.

Further work is needed to address those cases in which parties have not so notified the Secretariat.

Guideline references	Text discussed by the COP
27, 29	{In case a country has not communicated any such information, exports to that country are only allowed if the person who arranges the transport has obtained written confirmation from the authorities in the country of destination that the equipment is not considered to be waste.}

Further work is also needed on how to reflect the information contained in the notification from countries in the declaration made by the person who arranges the transport.

Guideline reference	Text discussed by the COP
Appendix III, box 8	{the receiving facility is covered by a notification by the authorities of the country of import indicating it may receive equipment as non-waste as published by the Secretariat of the Basel Convention};

2. Residual life time and age of used equipment

Three texts were discussed that relate to this subject

— a) When equipment normally should be considered waste

Guideline reference	Text discussed by the COP
30	{The residual life of the equipment is no longer than 1/3 of the normal life span of this kind of new equipment.}

— b) Requirements for transport of used equipment destined for root cause analysis, repair and refurbishment

Guideline reference	Text discussed by the COP
31(b)	{and that the residual life of the equipment is more than 1/3 of the normal life span of this kind of equipment}

— c) Documentation to be provided by the person who arranges the transport

Guideline reference	Text discussed by the COP
32	{date of production of every piece (age) (excluding for spare parts or components)}

3. Obsolete technologies, including cathode ray tubes

Requirements for transport of used equipment destined for failure analysis, repair and refurbishment

Guideline reference	Text discussed by the COP
31(b)	[Used equipment transported across borders is compliant with applicable national legislation and relevant international rules, standards and guidelines on restrictions of the use of hazardous substances [, do not contain cathode ray tubes (CRTs)]]

4.— Identification of relevant actors in the documentation

Further work is needed to assess if some additional actors should be added to paragraph 32 (a) and appendix III.

Guideline reference	Text discussed by the COP
32(a)	{Name of Original Equipment Manufacturer (name and contacts of importer)}
Appendix III	<ul style="list-style-type: none"> • {Carrier} • {Importer} • {Country of export{/dispatch} • {Country of import{/destination}

5.— Specific exemption for medical devices

Further work is needed on specific exemptions for medical equipment in the context of transports for failure analysis, repair and refurbishment.

Guidelines reference	Text discussed by the COP
31(b)	<p>[Where used medical devices and their components¹ are sent by and to the manufacturer or a third party acting on behalf of the manufacturer, for any of the following purposes:</p> <ul style="list-style-type: none"> (i) — failure analysis, diagnostic testing, (ii) — refurbishment, or (iii) — repair, <p>under a valid agreement² and hazardous wastes resulting from these operations are shipped for environmentally sound management [to Annex VII Countries] [or to non Annex VII countries as long as systems are in place to achieve the equivalent level of environmental protection].]</p>

6.— Specific exemption for used parts

Further work is needed on specific exemptions for used parts in the context of transports for failure analysis, repair and refurbishment.

Guidelines reference	Text discussed by the COP
31	[Used parts for service and maintenance of equipment which may contain electrical or electronic components, handled in a closed circular economy for remanufacturing ³ .]

¹ As per definition in GHTF in SG1(PD)/N71R04.

² "Valid agreement": a long term contract between the manufacturer and the third party shipping or performing the refurbishment, repair or failure analysis identifying responsibilities and procedures for the correct handling of used electrical and electronic equipment.

³ Remanufacturing is a standardized industrial process that restores used parts to fulfill a function that is at least equivalent compared to the original part.

7.—Waste resulting from failure analysis, repair and refurbishment activities

Guideline references	Texts discussed by the COP
31 (b)	<p>[[All equipment that after failure analysis, repair and refurbishment is still unusable will be taken back to the country of export]. All residual waste generated from the failure analysis, repair and refurbishment operation which is hazardous according to the Basel Convention definitions (Article 1, 1(a) and 1(b)) or its hazardous characteristics are unknown, shall be disposed of [in an environmentally sound manner (ESM) in accordance with the Basel Convention]] [in an Annex VII country]] [in [the export country or] an Annex VII country unless accompanied by a conclusive proof that the residual hazardous waste can be treated at a facility in the importing country is ESM]. Any transboundary movements necessary shall be accomplished in accordance with the Basel Convention;]</p>
31 (b)	<p>[[All equipment that after failure analysis repair and refurbishment is still unusable [must be managed in an environmentally sound manner. If the equipment cannot be repaired or refurbished [, and was exported by an Annex VII country] it should be returned[, under the full responsibility of the country of export,] to the [country of export] [exporter] [person] [if the country of export is a non-Annex VII country, it should be dealt with in an ESM and according to the principle of proximity] [or another country where an appropriate ESM facility exists in accordance with the Basel Convention.] [will be taken back to the country of export.] All residual waste generated from the failure analysis, repair and refurbishment operation which is hazardous according to the Basel Convention definitions (Article 1, 1(a) and 1(b)) or its hazardous characteristics are unknown, shall be disposed of [in an environmentally sound manner (ESM) in accordance with the Basel Convention]] [in an Annex VII country]] [in [the export country or] an Annex VII country unless accompanied by a conclusive proof that the residual hazardous waste can be treated at a facility in the importing country is ESM]. Any transboundary movements necessary shall be accomplished in accordance with the Basel Convention;]</p>
Section VI	<p>[It is recommended to facilities receiving used equipment that is not waste and is intended for failure analysis, repair and refurbishment to, as appropriate, include provisions in the contract with the person who arranges the transport that</p> <p>a) used equipment that was destined for failure analysis, repair or refurbishment, but for which no failure analysis, repair or refurbishment has been conducted,</p> <p>b) waste generated during failure analysis, repair or refurbishment; is returned to the person who arranges the transport or disposed of in an environmentally sound manner in another country]</p>

Appendix VI

References

- Basel Action Network, 2002. "Exporting harm: The high-tech trashing of Asia." [Available from: http://svtc.org/wp-content/uploads/technotrash.pdf](http://svtc.org/wp-content/uploads/technotrash.pdf)
- Basel Convention Mobile Phone Partnership Initiative (MPPI), 2009a. *Guideline on Awareness Raising-Design Considerations*. Revised and approved text, 25 March 2009. [Available from: http://basel.int/Implementation/TechnicalAssistance/Partnerships/MPPI/MPPIGuidelinesandGlossaryofTerms/tabid/3251/Default.aspx](http://basel.int/Implementation/TechnicalAssistance/Partnerships/MPPI/MPPIGuidelinesandGlossaryofTerms/tabid/3251/Default.aspx)
- Basel Convention Mobile Phone Partnership Initiative (MPPI), 2009b. *Guideline on the Collection of Used Mobile Phones*. Revised and approved text, 25 March 2009. [Available from: http://basel.int/Implementation/TechnicalAssistance/Partnerships/MPPI/MPPIGuidelinesandGlossaryofTerms/tabid/3251/Default.aspx](http://basel.int/Implementation/TechnicalAssistance/Partnerships/MPPI/MPPIGuidelinesandGlossaryofTerms/tabid/3251/Default.aspx)
- Basel Convention Mobile Phone Partnership Initiative (MPPI), 2009c. *Guideline for the Transboundary Movement of Collected Mobile Phones*. Revised and approved text, 25 March 2009. [Available from: http://basel.int/Implementation/TechnicalAssistance/Partnerships/MPPI/MPPIGuidelinesandGlossaryofTerms/tabid/3251/Default.aspx](http://basel.int/Implementation/TechnicalAssistance/Partnerships/MPPI/MPPIGuidelinesandGlossaryofTerms/tabid/3251/Default.aspx)
- Basel Convention Mobile Phone Partnership Initiative (MPPI), 2009d. *Guideline on the Refurbishment of Used Mobile Phones*. Revised and approved text, 25 March 2009. [Available from: http://basel.int/Implementation/TechnicalAssistance/Partnerships/MPPI/MPPIGuidelinesandGlossaryofTerms/tabid/3251/Default.aspx](http://basel.int/Implementation/TechnicalAssistance/Partnerships/MPPI/MPPIGuidelinesandGlossaryofTerms/tabid/3251/Default.aspx)
- Basel Convention Mobile Phone Partnership Initiative (MPPI), 2009e. *Guideline on Material Recovery and Recycling of End-of-Life Mobile Phones*. Revised and approved text, 25 March 2009. [Available from: http://basel.int/Implementation/TechnicalAssistance/Partnerships/MPPI/MPPIGuidelinesandGlossaryofTerms/tabid/3251/Default.aspx](http://basel.int/Implementation/TechnicalAssistance/Partnerships/MPPI/MPPIGuidelinesandGlossaryofTerms/tabid/3251/Default.aspx)
- Basel Convention Partnership on Action for Computing Equipment (PACE), 2009. *Environmentally sound management criteria recommendations*. Revised 15 March 2011. [Available from: http://basel.int/Implementation/TechnicalAssistance/Partnerships/PACE/PACEGuidelines,ManualandReports/tabid/3247/Default.aspx](http://basel.int/Implementation/TechnicalAssistance/Partnerships/PACE/PACEGuidelines,ManualandReports/tabid/3247/Default.aspx)
- Basel Convention Partnership on Action for Computing Equipment (PACE), ~~2011~~2013a. *Guideline on Environmentally Sound Testing, Refurbishment and Repair of Used Computing Equipment*. Revised 10 May 2013. [Available from: http://basel.int/Implementation/TechnicalAssistance/Partnerships/PACE/PACEGuidelines,ManualandReports/tabid/3247/Default.aspx](http://basel.int/Implementation/TechnicalAssistance/Partnerships/PACE/PACEGuidelines,ManualandReports/tabid/3247/Default.aspx)
- Basel Convention Partnership on Action for Computing Equipment (PACE), ~~2011~~2013b. *Guideline on Environmentally Sound Material Recovery and Recycling of End-of-Life Computing Equipment*. Revised 10 May 2013. Revised in 10 May 2013. [Available from: http://basel.int/Implementation/TechnicalAssistance/Partnerships/PACE/PACEGuidelines,ManualandReports/tabid/3247/Default.aspx](http://basel.int/Implementation/TechnicalAssistance/Partnerships/PACE/PACEGuidelines,ManualandReports/tabid/3247/Default.aspx)
- Basel Convention Partnership on Action for Computing Equipment (PACE), 2011. *Guidance on Transboundary Movement (TBM) of Used and End of Life Computing Equipment*.
- Huisman, J., 2012. "Eco efficiency evaluation of WEEE take back systems", in *Waste Electrical and electronic Equipment (WEEE) Handbook*, Goodship, V. and Stevels, A., eds., Woodhead Publishing.
- Caravonos, J. et al, 2013. "Assessing Worker and Environmental Chemical Exposure Risks at an e-Waste Recycling and Disposal Site in Accra, Ghana", *Journal of Health and Pollution*, February 2011, Vol. 1, No. 1, pp. 16-25. [Available from http://www.journalhealthpollution.org/doi/full/10.5696/jhp.v1i1.22](http://www.journalhealthpollution.org/doi/full/10.5696/jhp.v1i1.22)
- Schmidt, C.W., 2006. "Unfair trade: e-waste in Africa", *Environmental Health Perspectives*, vol. 114 No. 4, pp. A232-A235. [Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1440802/](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1440802/)
- Solving the e-waste problem Initiative (StEP), 2009. Annual Report 2008. [Available from: http://collections.unu.edu/view/UNU:6142#viewAttachments](http://collections.unu.edu/view/UNU:6142#viewAttachments)

<https://www.itu.int/en/ITU-D/Climate-Change/Documents/GEM%202017/Global-E-waste%20Monitor%202017%20.pdf>

United Nations Economic Commission for Europe (UNECE), ~~2009~~2015. *UN Recommendations on the transport of dangerous goods – Model regulations, ~~eighteenth~~nineteenth* revised edition. Available from: ~~http://www.unece.org/trans/danger/publi/unrec/rev18/18files_e.html~~. Available from: http://www.unece.org/trans/danger/publi/unrec/rev19/19files_e.html.

United Nations University (UNU), 2007. “2008 Review of Directive 2002/96 on Waste Electrical and Electronic Equipment (WEEE): Final report”, authored by Huisman, J. et al. See http://ec.europa.eu/environment/waste/weee/pdf/final_rep_unu.pdf

Yu, X. et al, 2008. “E-waste recycling heavily contaminates a Chinese City with chlorinated, brominated and mixed halogenated dioxins”, *Organohalogen Compounds*, vol. 70, pp. 813-816.
