



STEERING SAFELY THROUGH E-WASTE REGULATIONS

Today's interconnected global information society creates an enormous amount of electronic waste (e-waste). According to the *Global E-waste Monitor of 2017*, the world generated 44.7 million metric tonnes (Mt) of it in 2016: the astonishing equivalent of almost 4,500 Eiffel Towers. Current trends suggest that this amount will increase to 52.2Mt by 2021. So, what happens to all this waste?



44.7 million metric tonnes of e-waste = \$58 billion estimated value of raw materials

Unfortunately, only 20% of this mountain of e-waste was recycled through appropriate channels. When treated inadequately, e-waste creates serious health and environmental problems. Conversely, when managed responsibly, the environmental and economic benefits are almost incalculable. This material can be re-used in the forward supply chain and has the added benefit of being significantly less expensive to recycle than it is to mine from the earth.

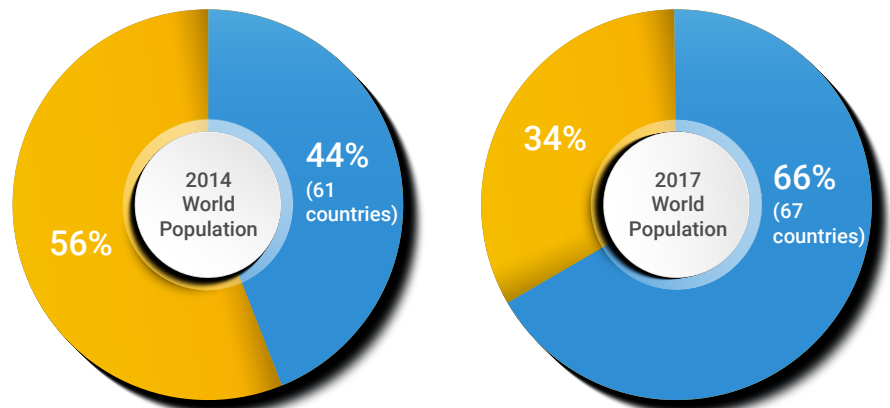
A Complex Picture

The good news is that more and more countries are adopting e-waste legislation. The bad news is that as local, regional and national regulations increase, so does the corresponding complexity of the compliance picture. Keeping up with changes in legislation around the world requires a global partner that has the local resources needed to understand the nuances at the country level.

In Europe, the current EU legislative framework to fight illegale-waste shipments (mainly the Waste Shipment Regulation and the WEEE Directive) is still somewhat inconsistent due to differences in implementation and interpretation at the country level. This is especially true for prosecutions: the number of infringements actually brought to court, the extent to which penalties are applied and the levels of actual penalties vary greatly.

WORLD POPULATION COVERED BY E-WASTE LEGISLATION

■ Covered by legislation
■ Not covered by legislation



66% or 67 countries in 2017 compared to 44% or 61 countries in 2014
(Global E-waste Monitor 2017, Executive Summary)

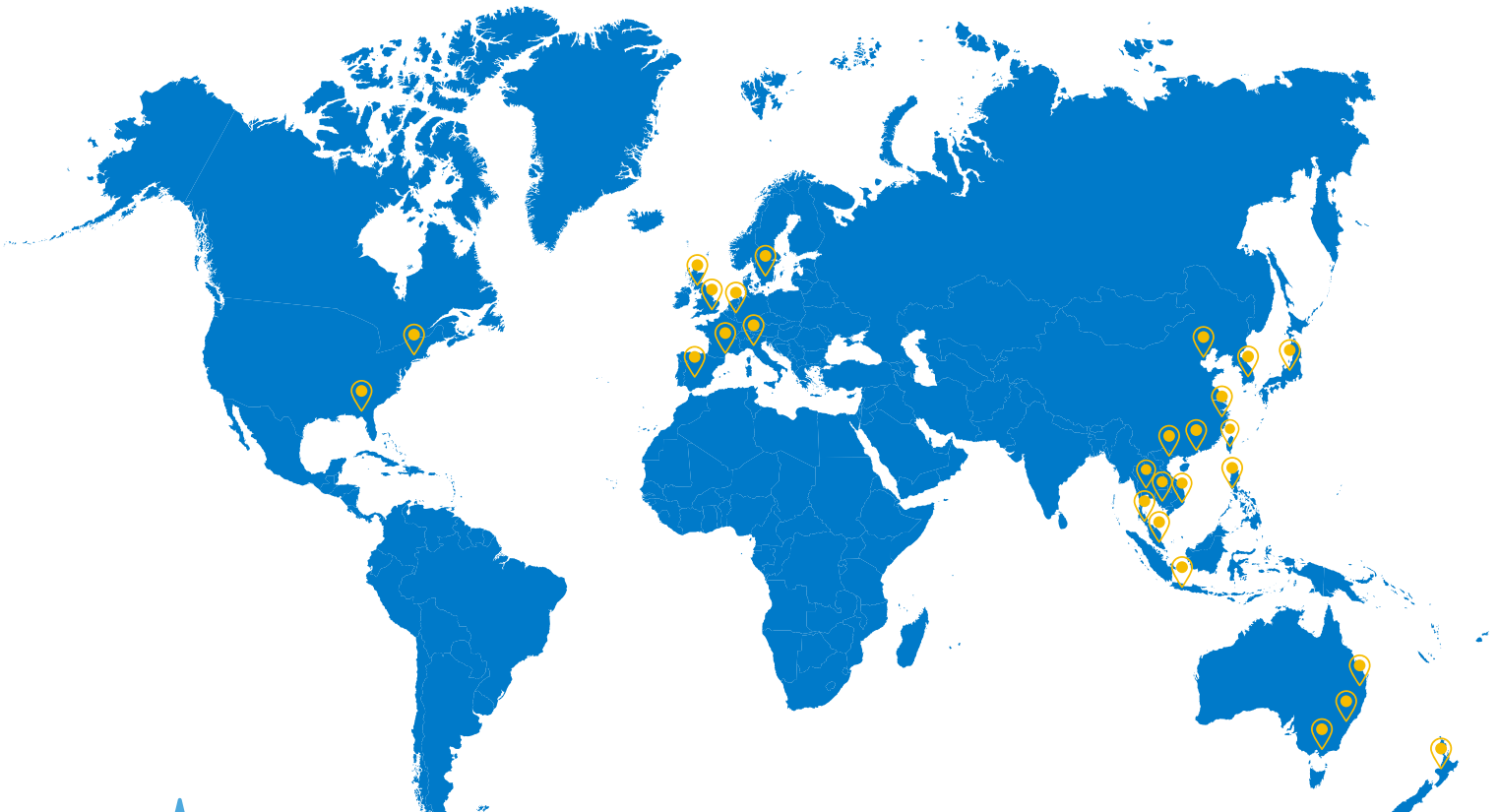
In Asia, where 40% of e-waste is generated, the legislative and regulatory situation is evolving rapidly. Bangladesh, for example, has no specific environmental policy act or guidelines directly related to managing e-waste. Most of the e-waste generated and imported is dumped into open landfills, farming land and water sources – and is often handled by child labour.

China, in contrast, does not allow the import of any hazardous materials. This is part of the National Sword Initiative announced in early 2017, which targets imported 'foreign waste' including plastics, industrial waste, electronics and other household waste products. Since then, China has aggressively cracked down on illegal scrap imports by requiring inspection of every container of recyclables imported from the United States, and by arresting hundreds of suspects and confiscating several hundred thousand tonnes of material.

Further complicating the compliance landscape in China, any hazardous material generated within the 11 current Free Trade Zones (FTZs) cannot be disposed of in-country. Instead, it must be exported to a country with the necessary infrastructure and legislation to process it compliantly. Very few permits allowing export from any FTZ have been issued by the Chinese regulatory authorities, so it is incumbent upon the owner of the exported material to validate that their partner has the correct ones in place.

Navigational Challenges

Navigating so much disparate legislation at global, regional and local levels has become increasingly more challenging. The issue of classification makes things even murkier. The types of e-waste covered by legislation can vary considerably across nations. Effectively, what may not be considered hazardous in one country could be classified as hazardous in another. In China, for instance, waste printed circuit-boards are classified as hazardous, while in Singapore they are deemed non-hazardous provided they do not contain any of the constituents listed by the Basel Convention as hazardous (see table below).



A truly global footprint across 30+ owned and operated facilities gives TES an intimate knowledge of national and regional compliance issues. By closely monitoring changing legislation and regulations, TES can mitigate the considerable risks for our clients across the world.

Moving e-waste from one country to another is often necessary for a variety of reasons that can include the lack of a compliant recycling infrastructure, regulatory demands (China's FTZs, for example) or pure economic reasons. This can be problematic and administratively very time-consuming, not to mention risky. It takes a guide that has extensive experience in the types of documents required, that can provide available logistics solutions and compliance permits, and that has a thorough understanding of the differences and conflicts in import/export rules, and more. There are many potential pitfalls in any transboundary movement, and those pitfalls are magnified for multinational organisations with large supply chains.

The Basel Convention

The Basel Convention was developed as an instrument aimed at smoothing out much of this complexity. Adopted in 1989 and signed by 186 countries (not including the United States), it is a multilateral treaty that aims to prevent hazardous waste from being traded freely like ordinary commercial goods. It provides for regulatory exemption on equipment destined for re-use as a means of preventing waste generation, prolonging the lifecycle of electronic goods and promoting conservation of natural resources. However, the most recent Conference-of-Parties (COP13) failed to reach a consensus on whether something is waste or not and therefore intended for re-use.

What is clear are the documented materials that are designated as hazardous vs. non-hazardous, as drawn up in Hazardous List (A) and Non-Hazardous List (B). But it is up to the competent authority of each country involved in the export, import and/or transit of e-waste to decide on the classification of items according to its local domestic legislation. If any one of the countries involved in a transboundary shipment considers the waste hazardous, the Basel control procedures apply.

<p>Hazardous List (A 1180) found in Annex VIII</p>	<p>“Waste electrical and electronic assemblies or scrap 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))”</p>
<p>Non-Hazardous List (B 1110) found in Annex IX</p>	<p>“Waste electrical and electronic assemblies or scrap (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)”</p>
<p>Hazardous List (A1170) found in Annex VIII</p>	<p>“Unsorted waste batteries excluding mixtures of only list B batteries. Waste batteries not specified on list B containing Annex I constituents to an extent to render them hazardous”</p>
<p>Non-Hazardous List (B1090) found in Annex IX</p>	<p>“Waste batteries conforming to a specification, excluding those made with lead, cadmium or mercury”</p>

Permits and renewal

Where any items are classified as hazardous, the Basel Convention establishes a process of written notification and approval based on permits for all cross-border movements of e-waste. Handled at the country level, each permit covers a specific movement. Consider, for example, how TES would use its Basel permit to move e-waste from an FTZ in China for processing at its facility in Singapore:



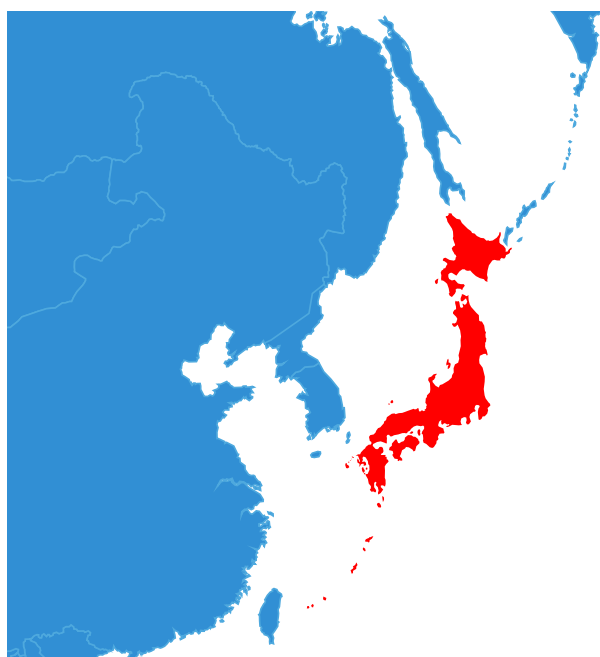
1. TES-China arranges the financial guarantees and insurances, then submits an export application to the state of export (China) and from there to the state of import (Singapore) and any transit states involved.
2. If China issues a decision with an authorization (as opposed to an objection), the movement can proceed.
3. Upon taking possession of the consignment, TES-China completes and signs a movement document and retains a copy, ensuring that tracking procedure and shipping requirements are carried out in accordance with the Basel Convention.
4. Upon receipt of the waste, TES-SG as disposer completes the movement document and sends a signed copy to the exporter and the state of export.
5. Upon completion of disposal, TES-SG completes the movement document, retains the original for filing and sends a signed copy to the exporter and the state of export.
6. The competent authority may then release the financial guarantees.

Permits and renewal

In using a valid permit to ship this material across boundaries, the importer and exporter must provide their company details along with those of the types and quantities of items being transported. So, before any organization can consider any transboundary movement of e-waste, there is a series of questions to think through:

- ✓ Do you know what you can and cannot export/import?
- ✓ Do you understand any volume limitations imposed?
- ✓ Do you understand the transport requirements?
- ✓ Do you know what regulatory agencies are involved?
- ✓ Do you know what paperwork is required – and how to complete it?
- ✓ Can you avoid delays and penalties during the process?

Obtaining permits is a long and difficult process that can even take years. Any Basel export application for hazardous waste from Australia, for example, is subject to a period of public consultation or comment. If there are any objections, the decision period is extended for an additional 60 days. And in developing countries like Indonesia and Malaysia, imprecise legislation can create ambiguities open to individual interpretation. With e-waste often classified as hazardous and subject to very stringent controls, companies are frequently required to have local operating permits and licenses in place before they can apply for an export permit – thus further complicating and extending the application process.



What's more, most permits are valid for only a year and each renewal is considered a new application. Renewals can also be challenging: the minimum review and processing time taken by Japan's Ministry of the Environment is four to six months. No wonder then that there are so few companies with the experience and expertise to handle the extraordinary complexity of this 'ecosystem'.



TES currently holds 30 permits for countries from Australia to Vietnam – including FTZs in China.

It took almost 3 years to obtain a permit for the first Basel transboundary shipment from Japan to the facility plant in Singapore.

What's the risk?

The bottom line is that the risks are considerable. It is mandatory for all signatories of the Basel Convention to report all their shipments, and tracking documents monitor each one to ensure compliance. All illegal shipments are reported on the Basel Convention website, with breaches subject to serious sanctions.

In 2017/2018, Hong Kong courts convicted dozens of importers of illegally bringing in e-waste from several countries. The United States Environmental Protection Agency (EPA) and the states of Washington and Oregon recently levied fines of well over \$500,000 on a Seattle electronics recycler for the illegal export of e-waste. In both examples – and many more that could be cited – the original owner of the material (frequently multinational corporations) is exposed to penalties and, more importantly, to reputational damage.

What is interesting is that the penalties and sanctions are laid down not by the Basel Convention, but by national legislation – which, again, can vary widely. In some countries, this goes beyond civil proceedings and associated fines into the criminal code, with the potential for prison sentences. This places an inherent legal mandate on any organization moving e-waste across country borders to be intimately familiar with the regulations of both countries involved (including classifications, transboundary shipment controls and required documentation for the different types of material being transported).

In Malaysia, any person or organisation guilty of a compliance offence under local regulations can be jailed for up to 5 years and/or fined up to 500,000 ringgit (\$128,300).

In Hong Kong, first-time offenders are liable to a maximum fine of \$200,000 and six months' imprisonment. For subsequent transgressions, offenders are liable to a maximum fine of \$500,000 and two years' imprisonment.

A reliable compass

With our extensive owned and operated global network of processing facilities, TES is one of the few companies in the world equipped to solve these kinds of challenges for our clients. Our global approach, coupled with our local touch, adds significant value in the most challenging geographies:

- ✦ Localized relationships with regulatory authorities all over the world.
- ✦ A thorough understanding of local language, culture and compliance issues. The importance of this as a critical success factor in global programs cannot be understated.
- ✦ An owned recycling infrastructure across most geographies we service – eliminating the need for exponential downstream processors, thereby lowering our clients' risk profile and allowing for a more closed-loop solution.
- ✦ Compliance representatives at each TES site to manage the application for and renewal of permits.
- ✦ Regional compliance and logistics teams with the depth of experience to carry out the required tactical actions.
- ✦ An existing network of permits and expertise that allows TES today to move materials compliantly across a range of borders.
- ✦ In APAC, some of the permits cover multiple rather than one-off shipments from the same source country.

In short, TES can effectively manage these risks for our clients while offering a single global solution that actually **feels** like a single global solution.

A safe harbour

The exponential growth of e-waste has created a pressing need for responsible management of its disposal. A bewildering amount of national and international legislation is already in place and, as recent lockdowns on the flow of materials into locales like Hong Kong suggest, the situation will become ever more regulated in the years ahead. Compliance is already paramount. To get it wrong is to waste valuable time and money, and to risk severe penalties, including an organization's most valuable asset – its reputation.