solving the e-waste problem

Developing Legislative Principles for e-waste policy in developing and emerging countries.

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Developing Legislative Principles for e-waste policy in developing and emerging countries.

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Executive Summary

Governments around the world are developing e-waste policies and legislation to deal with the growth of end-of-life electrical and electronic products. The creation of policies and legislation is often based on experiences from post-industrialised countries, while not always taking into account the unique and specific challenges of industrialising countries or economies in transition.
The aim of this paper is to present core legal-principles based on Extended Producer Responsibility (EPR) that can be reviewed, contextualised, and adapted by decision makers in countries that are developing legislation that will implement Extended Producer Responsibility programmes into the local context and in order to avoid a 'copy-paste' approach from post-industrialised to industrialising country legislation, except in critical areas such as 'definitions'.

In establishing a clear legal framework for e-waste collection and recycling, the following building block principles should be included:

1. Objectives – typically the legislative objectives should focus on the protection of the environment and human health, through sustainable management of e-waste along with any other specific goals or targets.
2. Definitions – clear definitions are necessary to ensure all stakeholders understand concepts as simple as what is e-waste, a producer, or a collector.
3. Roles and Responsibilities – determining what roles the stakeholders play in the e-waste take-back system is essential for all stakeholders to work together effectively.
4. System design – introducing producer responsibility systems is essential to ensure that both fractions with negative and positive value are collected and treated appropriately.
5. Enforcement – clear provisions for enforcement must ensure all stakeholders meet the requirements of the legislation. Having the best e-waste legislation in the world means nothing if it is not effectively enforced.
6. Social dimensions – Impacts and opportunities for stakeholders and the general public should be considered and, where appropriate, measures taken.
7. International alignment – aligning the legislation with internationally recognised conventions, such as the Basel Convention, and internationally recognised recycling standards will avoid complications.
8. Transparency – the more transparent the system is to all stakeholders and the public the less prone it will be to issues such as the misuse of funds or misreporting of data.

The following sections provide more detail and context on each of the previously stated building block principles.

1. Objectives

An EPR-based legislation for e-waste or waste electrical and electronic equipment (WEEE) aims to protect the environment and human health by preventing or reducing the adverse impacts of the generation and management of e-waste. Based on the polluter pays principle, EPR makes producers responsible for the end-of-life management of products they place on the market, and the impacts caused by their products on human health and the environment. Through the financing of appropriate collection, disassembly, and recycling systems by producers, social and environmental costs can be internalised and improved standards can be implemented. Ideally, EPR can also create incentives for more environmentally sound and efficient resource recovery that requires separate collection of e-waste and its proper treatment, as well as the re-use of electronics. EPR seeks to improve the environmental performance of all entities involved in the life cycle of electrical and electronic equipment (EEE), i.e. producers, distributors, repair/refurbishers, business and private users, and, in particular, those operators directly involved in the collection and treatment of e-waste.

Legal Principles on Objectives:

EPR-based legislation should clarify the objectives it tries to achieve, for instance:

- Making producers responsible for the end-of-life management for products they place on the market.
- Improve the environmental performance of all operators involved in the life cycle of electrical and electronic equipment.
- Ensure separate collection and proper treatment of e-waste.

2. Basic Definitions Needed for Successful E-Waste Regulation

Based on the StEP and its members' experience, the use of effective and internationally aligned definitions in e-waste regulations is critical to ensure that a clear and precise understanding of the regulation's intent is achieved. To this end, key definitions that focus on the stakeholders and the components outlined in the system design section of this paper are in the glossary section of this paper, and can be incorporated into regulations as needed. Not all of the definitions will be required or necessary under e-waste regulations and some may require modification to suit the particular details under the model.

To illustrate how a definition is formulated, let's explore the considerations needed in formulating the definition of producer.

- The manufacturer or 'brand owner' of the product placed on the market, which will eventually arise as waste, is not always located in the same country as the importer, and any attempt to place legal responsibility on an overseas manufacturer will be problematic from an enforcement perspective. It is therefore more appropriate for the importer of the product to take on the responsibility of the manufacturer in the country of importation.
- In developing countries, where a significant quantity of used product is imported, it would be appropriate to include used product within the scope of the definition, in order to ensure that the importer takes responsibility for the product at end-of-life and does not rely on manufacturers or importers of new product to take responsibility for all used products.
- The way in which product is placed on the market could be traditional sale by distributor, retailer, via distance communication such as internet or phone sales, or for personal use.

Taking the above into consideration, a definition of producer could be:

Producer	**Meaning any natural or legal person who,** • is established in the country and manufactures EEE under his own brand name or trademark, or has EEE designed or manufactured and markets it under his name or trademark within the country; • is established in the country and places imported new or used EEE on the market for sale or personal use; • is not established in the country and is registered with a locally, legally approved authorised representative and sells EEE by means of distance communication into the country.

Legal Principles on Definitions:

- Clear definitions are required to ensure that the intent of the legislation is understood adequately.
- Where possible, definitions should be aligned with internationally recognised definitions. Please refer to the examples list in the Glossary/Definitions section.

3. Roles and Responsibilities

The success of EPR-based legislation relies on each stakeholder fulfilling their required roles and responsibilities, which should be well-defined and simple to understand in the legislation. Key stakeholders and their roles and responsibilities are usually identified initially in the definitions section of the legislation. Ongoing coordination and exchange between these stakeholders is important. Roles are usually dependent on the existing local context, and may include for example:

- Producers/importers are responsible for take back and environmentally sound management of e-waste according to their market share, as well as the related financial arrangements, and for registering with national registries.
- Government authorities develop legislation and carry out enforcement, registration, and auditing.
- Producer Responsibility Organizations (PROs), if authorized or developed by producers, act on members' behalf to ensure recycling and financial commitments.
- Recyclers/dismantlers must comply with environmental requirements.
- Informal actors must formalize their recycling operations and need to meet the same requirements as other recyclers. Alternatively, they need to restrict their operations to collection.
- Distributors/retailers should only buy products from registered producers/importers.
- Local authorities may play a complementary collection, treatment, or enforcement role.
- Users must use separate waste and utilize the collection infrastructure.
- All stakeholders are responsible for playing their part in raising awareness.

Legal Principles on Roles and Responsibilities:

- Roles and responsibilities should be well-defined in EPR-based legislation and easy to understand.
- As roles and responsibilities of different actors may be spread over several articles of the legislation, it is recommended that governments publish a guidance document that summarizes the requirements per actor.

4. System Design

EPR-based legislation needs to cover all elements required to make the e-waste management system clear, transparent, and enforceable. The legislation must enable the setup of an efficient e-waste collection, reuse, and recycling system for optimal resource recovery, and proper management of non-valuable/hazardous material. At the same time, it should not be too prescriptive on how the e-waste management system should be operated. It must allow for a degree of freedom for relevant stakeholders to build an e-waste collection and recycling system that can continuously improve based on the day-to-day collection, reuse, and recycling experience in the country.

4.1 Collection

In order to channel e-waste to licensed recycling facilities, a high level of separate collection of e-waste is required, and EPR-based legislation should allow for the setup of an efficient collection system. In many countries, an informal and unregulated network of collectors, refurbishers/repair shops, dismantlers, and brokers already exists, and legislation should aim to channel these collected volumes to trained and recognized reuse/repair shops or licensed recyclers. It may be necessary to offer incentives to collectors to collect complete devices. The incentive would typically need to be more attractive than the payment from informal recyclers and should encourage the collection of whole products over cherry-picked and partially dismantled items. It is important to note that the hazardous nature of e-waste arises from improper treatment and not from collection.

- It is preferable that EPR-based legislation makes producers responsible for the setup, operation, and financing of such a collection framework, or otherwise ensures that this is organized by other parties acting on their behalf in the form of a PRO.
- Legislation should allow for informal collectors to continue their collection efforts and incentivize them to collect all e-waste devices, in order to make use of the highly efficient informal collection systems that already exist in many countries today.
- Legislation should give careful consideration to the waste hierarchy. Repair, refurbishment, and reuse, which keep equipment and its components in use for a longer period of time, should be preferred over recycling. In other words, the collection and recycling system should not aim to close routes that lead to repair and refurbishment, but instead to ensure that products and fractions that are not intended for reuse will be channelled to authorized recycling facilities.
- Legislation should require that all collection points must be licensed or compliant with national regulations to receive, manage, sort, and store e-waste.

In order to avoid operational issues during the collection process and with regards to

the resulting material flows, it is recommended that the transfer of ownership of products delivered to collection systems should be facilitated or take place automatically, for example through transferring ownership of items from the user to the waste collector. This is intended to relieve both private and business users of potential issues associated with taxation and financial transactions when sending products to the collection system, thereby encouraging users to utilize them. It will also simplify the transport and potential reuse/refurbishment/resale of end-of-life equipment and/or its components delivered to the collection system.

4.2 Financing

The operation of the system under EPR will need to be financially supported to ensure effective and sustainable operation. As this area is often hotly debated from a stakeholder's perspective, it is of critical importance that e-waste regulations clearly describe who is responsible for financing which element of the collection and recycling system, and how costs will be allocated to individual stakeholders to ensure fair collection and allocation of finances. This system should be available for external auditing by the producer, collector/collector associations, recyclers, and government agencies.

- It is preferable that EPR-based legislation makes producers responsible for financing collection and recycling cost for all e-waste fractions according to best available technologies.
- Producers should contribute to the financing of e-waste collection and recycling according to their market share per EEE category placed on the market.
- Collection targets should be determined based on the amount of e-waste generated in the country. Instead of looking at current sales of equipment only, the amount of e-waste generated in a certain year should be estimated based on estimated lifespans for different e-waste categories (for example using UNU keys[1] for classification), and the determined sales in the corresponding previous years and/or estimations on available stocks in households and businesses.
- Legislation should include the setup of an entity that will act as a Control Tower (e-waste register) and will calculate each producer's market share and the associated collection target.
- Legislation should require that all producers in a country must register with the national e-waste register.

[1] See https://i.unu.edu/media/ias.unu.edu-en/project/2238/E-waste-Guidelines_Partnership_2015.pdf

4.3 Transboundary-Movement

While recognising the important role of the provisions of the Basel Convention and the Bamako Convention (in Africa) in addressing transboundary shipments of hazardous materials and e-waste in particular, efficient e-waste recycling solutions, in line with best-available-technologies, may require a regional approach instead of a national approach. On a national level, it may not be possible to generate sufficient volumes that make national treatment facilities economically viable, while at the regional level it could be possible to generate sufficient volumes of e-waste to run state of the art treatment facilities. Such a regional approach might require transnational and transcontinental shipments of e-waste that cannot be recycled in-country, and this possibility should be accommodated for in a national legal framework for e-waste management.

In order to avoid operational issues when determining transboundary flows, it is recommended that the distinction between hazardous and non-hazardous e-waste is clearly defined in the legislation (following provisions in the Basel Convention). Classifying all e-waste as hazardous waste should be avoided and further analysed per product (or product categories) before determining which ones should be considered hazardous waste when they reach end-of-life.

4.4 Cost-Effectiveness

It is paramount that the funds secured for e-waste management are used to cover costs directly related to e-waste management only, and are not diverted for other purposes. This is to ensure transparency and the system's cost effectiveness. The EPR-based legislation needs to require producers to be transparent in the cost structure of the collection and recycling system based on input from local actors. At the same time, legislation should also allow producers to freely choose how they comply with the legal requirements, be it via a collection and recycling solution along with other producers or individually.

Legal Principles on System Design:

- EPR-based legislation should make producers financially and operationally responsible for the setup of a collection and recycling system or should ensure that this is organized by other parties acting on their behalf, which can take the form of a PRO.
- Producers should contribute to the financing of e-waste collection and recycling according to their market share per EEE category placed on the market.
- Legislation should allow for informal collectors to continue their collection efforts and establish incentives for them to collect all devices, in order to make use of the highly efficient informal collection system that already exists in many countries today.
- Legislation should give careful consideration to the product lifecycle and waste hierarchy, giving preference to repair, refurbishment, and reuse activities that keep equipment and its components in use for a longer period of time.
- Legislation should require that all collection points must be licensed or in compliance with national regulations to receive, manage, sort and, store e-waste.
- Collection targets should be determined on the basis of the amount of e-waste generated in the country. An agreed framework to estimate such an amount should be developed or adopted by the country.
- The legislation should include the setup of an entity that will act as a Control Tower (e-waste register) and will calculate each producer's market share and the associated collection target.
- Legislation should require that all producers and importers in a country must register with the national e-waste register.
- Legislation should allow for transnational and transcontinental shipments of e-waste that cannot be recycled in country.
- EPR-based legislation should require transparency in the cost structure of the collection and recycling system based on input from the local actors and be subject to audits by stakeholders of the system.

5. Enforcement

Without enforcement, stakeholders (e.g. collectors, recyclers, and producers) who comply with environmental, health, and safety standards may be at a financial and operational disadvantage compared to companies that do not comply (free-riders). Effective monitoring and enforcement of EPR legislation across the country is essential to create a level playing field for all companies and limit free-riding; without it, total failure of the legislation may occur. Effective enforcement depends on adequate monitoring and sur-

veillance of collector, recycler, and producer activity, as well as communication and collaboration among different stakeholders. For instance, regular exchange with stakeholders from the private sector can help to identify free-riders, remaining challenges, and possible solutions. Public monitoring systems can provide a collaborative approach to implementing legislation and improve transparency. These can be administered by public or private entities. Auditing by authorities or independent third parties ensures reliable information.

When monitoring EPR-based legislation, identification and registration of producers, along with information about their participation in individual or collective collection schemes, is essential. PROs or individual producers should report on the contracting of service providers, the accessibility of collection services, and collected quantities. This information needs to be verified independently. It is also necessary to know the annual quantities of EEE placed on the market and the estimated annual quantities of resulting e-waste. This is especially challenging in countries where a large share of products is placed on the market by many small companies and importers.

It requires communication between environmental, customs, and port authorities at different levels of government, as well as with the e-waste register and PROs if and where they exist. Monitoring and enforcing regulations regarding imported EEE also includes strongly enforcing bans of illegal e-waste imports. Dismantlers and recyclers must also be licensed, their waste flows monitored, and their operations tested for compliance with environmental standards.

Clear sanctions can facilitate enforcement and help send a strong signal to stakeholders that non-compliance will present a greater financial or reputational risk than the benefits gained from non-compliance. Sanctions can include penalties or revoking the right of a producer/importer or PRO to operate.
Prosecutors and judges may need capacity building to bring legal force to sanctions.

National and especially local public authorities may lack the resources and staff to implement enforcement actions. Thus, national regulatory authorities need to provide targeted information, guidance, and training. Legislation should also allow for or make reference to financial mechanisms to cover enforcement costs (e.g. annual registry fees, fees for evaluation of management plans or collective schemes, or specific taxes).

Both business and private users should be given enough time and information to adapt to new requirements.

Legislative Principles on Enforcement:

- EPR-based Legislation should assign clear responsibilities for enforcement to government agencies or bodies.
- Legislation should include clear procedures for registration of producers, quantities placed on the market, and reporting requirements.
- Legislation should provide the basis for procedures on licensing and auditing of dismantler and recycler operations to make sure that they follow environmentally sound management standards.
- Sanctions and penalties for non-compliance should be clear to actors, proportionate to the offence, and enforceable by government agencies to stop unwanted behavior.
- Regular communication between environmental, customs, and port authorities, as well as with the e-waste register and PROs, should be established to facilitate monitoring and enforcement.
- Legislation should explicitly allow for or make reference to financial mechanisms to cover the costs of monitoring and enforcement actions.

6. Social Dimensions

Establishment of EPR-based legislation should be carried out through consultation with all affected stakeholders (e.g. producers, recyclers, informal sector, civil society, government, business, and private users) to ensure that it is implementable in the local context. After the legislation is in force, review meetings with stakeholders should be held regularly to identify and address barriers and challenges. This can be done through the establishment of an E-Waste Advisory Council.

In countries where e-waste is primarily handled informally, it is particularly important to pay close attention to the informal sector. It is important that these actors are not further marginalised by the legislation and are provided with incentives and options to become part of the EPR-based system, through organisation and gradual formalisation with appropriate training on safe collection and handling. Failing to address the informal sector can lead to severe difficulties in channeling waste streams to the formal sector, as the informal sector can treat waste at a more competitive price due to substandard treatment.

At the same time, special attention should be paid to organised crime that is involved in e-waste management in many developing countries. If not considered, this can jeopardize any e-waste management model. If not linked to minimal requirements (e.g. trace- ability and registration of workers) the established incentives promoted explicitly through the legislation could, in the worst case, even facilitate such criminal practices.

Additionally, legislation that ignores existing informal structures may lead to the loss of the subsistence income/livelihoods that informal actors need to survive. Producers and PROs, or their service providers, should be allowed to establish business relations with informal collectors while supporting their compliance with legal standards.

It is important that users of EEE in private households and business are given the necessary information about their role in contributing to re-use, recycling, and other forms of recovery of e-waste. Therefore, it is important that they understand the requirements to dispose of e-waste through separate collection streams: they must be informed of the return and collection systems available to them, encouraging the coordination of information on the available collection points, irrespective of the producers or other operators who have set them up.

Legal Principles on Social Dimensions:

- Stakeholder engagement is critical to the success of an e-waste system. To encourage stakeholder engagement, e-waste legislation should foresee the establishment of an E-Waste Advisory Council.
- In countries where e-waste is primarily handled informally, it is important that these actors are provided with incentives and options to become part of the EPR-based system, through organization and gradual formalization with appropriate training on safe collection and handling of e-waste.
- Legislation should include provisions on encouraging EEE users to utilize licensed collection and recycling facilities, instead of sending their waste to landfill, sub-standard treatment, or incineration.
- Criminal activities should be considered for preventing any latent facilitation through legislative means.

7. International Alignment

The trading flows of electrical and electronic products and secondary metals are largely international. At end-of-life, the process of e-waste management will often involve economic operators from different sectors, as well as different countries. International alignment of some aspects of e-waste management is therefore highly desirable to get optimum results at lowest costs, and to avoid gaps or overlaps in responsibilities and actions. Globally agreed definitions on key aspects of e-waste management greatly enhance the efficiency of operations, as all actors involved have the same understanding

of the meaning of terms. Examples of important definitions include: producer, e-waste, hazardous waste, end-of-waste.

Aspects related to treatment operations should be aligned with international best practices (such as the EN 50625-series of standards or the PACE Guidelines on computers and mobile phones under the Basel convention)[2] as much as possible to ensure proper handling of e-waste, proper working conditions, and to avoid pollution of the environment. Alignment helps to avoid misunderstandings and complications regarding both the operations themselves, as well as the outcome of these operations (e.g. about quality of materials).

As there are only a few facilities globally that can provide proper recycling and resource recovery solutions, transboundary shipment of e-waste will be necessary in most cases. International rules and conventions (e.g. the Basel Convention and the Bamako Convention) largely govern such operations. International alignment can improve the handling of requests for shipping to these licensed specialised facilities, keeping costs and delays to a minimum.

Legal Principles:

- Definitions, standards related to treatment operations, and rules for transboundary shipments should be aligned with international guidelines and/or conventions as much as possible:
  - Definitions (refer Glossary/Definitions section)
  - Standards related to treatment operations
  - Rules for transboundary shipments

8. Transparency

In developing any e-waste management system, transparency and surveillance is recommended to promote trust and engagement of actors in the system, as well as to ensure compliance and accountability of the actors involved. By establishing an auditable transparent workflow, the financial obligations are reported, the performance of the authorised actors in the supply and value chain in terms of collection, treatment, health, and safety standards, as well as en-vironmental performance, are regularly assessed and the financier, as well as other relevant stakeholders, are able to see how the funds are allocated and actions executed to meet their obligations within the established system.

[2] Step has developed a White Paper on Recommendation for standards development for the phases of waste handling, with an Annex listing existing standards. See http://www.step-initiative.org/publications.html.

The EPR-based system must guarantee that the received income goes to the collection and recycling of e-waste and is not used for other purposes. Creating transparent, easy reporting will be needed to demonstrate the positive impact of the designed system. This means that the financial and operational monitoring is preferably done by a 'neutral' third party that has no direct benefit.

Legal Principles on Transparency:

- EPR-based legislation should ensure that income collected within the EPR-based system is appropriately used for the allocated purpose of collection and recycling of e-waste and not used for other purposes.
- Legislation should ensure that the flow of financial obligations and operational performance should be auditable by a neutral third party that has no direct benefit.
- Audit results should be made available to relevant stakeholders including financer, supply chain actors, enforcement agencies, and government.

9. Glossary/Definitions

The below list contains an overview of terms used in this paper. The last column of this table indicates which definitions are suggested to be included in e-waste legislation.

Term	Definition	Suggested to be included in e-waste law
Transfer of ownership	The point at which ownership of EEE or e-waste is transferred from one party to another	
Placed on the market	The point at which EEE becomes available for sale on a local market; it is generally understood that this point can be the time after which it has been imported or manufactured and is then sold to a distributor, retailer, or consumer.	Yes
Private user (consumer)	A natural person; user of the EEE for personal, family, or household purposes.	Yes
Business user	Entity that uses the EEE in a business environment.	Yes
Free-rider	A local manufacturer or importer of a product who has not registered as a producer and is not taking its share of responsibility for the product it places on the market.	
Best available techniques	Best known environmental treatment standards	
E-Waste	A term used to cover items of all types of electrical and electronic equipment (EEE) and its parts that have been discarded by the owner as waste without the intention of re-use.[3]	Yes
Recycling	Any recovery operation by which waste materials are reprocessed into products, materials, or substances, whether for the original or other purposes, that may take place at a treatment facility or a subsequent downstream processor. It does not include energy recovery and the reprocessing into materials that are to be used as fuels	Yes
Collection Centre	An entity that undertakes collection operations of e-waste including security and storage. This can be fulfilled individually or jointly by a registered society, a designated agency, a company, or an association	Yes
Electrical and Electronic Equipment	Equipment which is dependent on electric currents or electro-magnetic fields in order to work properly, and equipment for the generation, transfer, and measurement of such currents and fields falling under the categories set out and designed for use with a	Yes

[3] Step has developed a White Paper on "One Global Definition on e-Waste".
See http://www.step-initiative.org/publications.html.

(EEE)	voltage rating not exceeding 1000 Volt for alternating current and 1500 Volt for direct current	
Refurbisher	A party that repairs, refurbishes, or conducts parts harvesting of EEE or e-waste to extend the working lifetime of the product or its components.	Yes
E-Waste Generator	A legal owner of the EEE when it becomes e-waste	Yes
Registry	An independent national body established to maintain a register of producers of EEE and to confidentially manage and calculate declared sales data to determine producer responsibility market share	Yes
Treatment facility	A facility where the dismantling and treatment of e-waste for further processing or for recycling takes place	Yes
E-Waste Advisory Council	Independent multi-stakeholder body that advises the EEE Registry; recommending updates to treatment and recycling standards, practices, and product categories/scope	Yes
Problematic fraction	A material fraction following dismantling that does not contain sufficient value to fully cover the cost of appropriate recycling.	Yes
Standards	A level of quality or attainment established by authority or general consent and used as an approved model of measure. Standards for collection, treatment, recycling, health, and safety etc. are requirements that collectors, collection points, refurbishers, recyclers, treatment centres, and other entities must follow in accordance with national law and global standards.	
Hazardous Waste	A waste with properties that make it potentially dangerous or harmful to human health or the environment and can be in the form of liquid, solid, or gas.	
End of waste	The point at which waste has undergone treatment and, due to that treatment, takes on a new form as a material	
Reuse	An operation by which the electrical and electronic equipment or its components is to continued to be used for the same purpose for which it was conceived, beyond the point at which its specifications fail to meet the requirements of the current owner and the owner has ceased use of the product.	Yes
Collector	The original individual or organisation to receive EEE or e-waste items from the generator prior to delivery to a refurbisher or recycler for treatment. Can be an individual collector or a collection centre.	Yes
Recycler	The entity receiving e-waste from collectors for the purpose of recycling at a treatment facility.	Yes
Refurbish	The operation of repairing EEE to improve or restore it to perform the same function for which it was originally purchased.	
PRO (Producer Responsibility Organisation)	An entity that can be established by producers to manage compliance with legal obligations on their behalf following authorisation by the responsible agency.	

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Green Paper #9	“Policy”	E-waste Prevention, Take-back System Design and Policy Approaches	13 February 2015
Green Paper #8	“Policy”	Differentiating EEE Products and Wastes	14 January 2014
Green Paper #7	“Reuse”	E-waste Country Study Ethiopia	10 April 2013
Green Paper #6	“Policy”	E-waste in China: A Country Report	05 April 2013
Green Paper #5	“Policy”	Transboundary Movements of Discard-ed Electrical and Electronic Equipment	25 March 2013
Green Paper #4	“Recycle”	Recommendations on Standards for Collection, Storage, Transport and Treatment of E-waste	22 June 2012
Green Paper #3	“Policy”	International Policy Response towards Potential Supply and Demand Distortions of Scarce Metals	01 February 2012
Green Paper #2	”Redesign”	Worldwide Impacts of Substance Restrictions of ICT Equipment	30 November 2011
Green Paper #1	“Policy”	E-waste Indicators	15 September 2011

All Step publications are online available at http://www.step-initiative.org/publications.html

About the Step Initiative:

"Step envisions tobe agents and stewards of change, uniquely leading global thinking, knowledge, awareness and innovation in the management and development of environmentally, economically and ethically-sound e-waste resource recovery, re-use and prevention."

Step is an international initiative comprised of manufacturers, recyclers, academics, governments and other organizations committed to solving the world's waste electrical and electronic-e-waste-problem. By providing a forum for discussion among stakeholders, Step is actively sharing information, seeking answers and implementing solutions.

Our prime objectives are:

- Research and Piloting
  - By conducting and sharing scientific research, Step is helping to shape effective policy-making
- Strategy and goad setting
  - A key strategic goal is to empower proactivity in the marketplace through expanded membership and to secure a robust funding base to support activity
- Training and Development
  - Step's global overview of e-waste issues makes it the obvious provider of training on e-waste issues
- Communication and branding
  - One of Step's priorities is to ensure that members, prospective members and legislators are all made aware of the nature and scale of the problem, its developmentop-portunities and how Step is contributing to solving the e-waste problem.

The Step initiative came about when several UN organizations, whowere increasingly aware of the growing global e-waste problem, saw the need for a neutral, international body to seek real, practical answers that would be supported by manufacturers, recyclers and legislators alike.

Step's core principles:

1. Step views the e-waste issue holistically, focusing on its social, environmental and economic impact – locally, regionally, globally.
2. Step follows the lifecycle of equipment and its component materials from sourcing natural resources, through distribution and usage, to disposal.
3. Step's research and pilot projects are "steps to e-waste solutions".
4. Step vigorously condemns the illegal activities that exacerbate e-waste issues, such as the illegal shipments, recycling practices and disposal methods that are hazardous to people and the environment.
5. Step encourages and supports best-practice reuse and recycling worldwide.

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