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Solving the E-Waste Problem (StEP) White Paper

**On the Revision on EU's WEEE
Directive - COM(2008)810 final**



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StEP White Paper On the Revision of EU's WEEE Directive - COM(2008)810 final

1 Introduction

Many StEP members have good first-hand experience with the practical application of the current European Union Directive on Waste Electrical and Electronic Equipment (WEEE) 2002/96/EC. During the process of scrutiny of the Directive, StEP and its members have been closely involved. As an example, the United Nations University (UNU), one of the initiators of StEP, together with the StEP members Regional Environmental Center for Central and Eastern Europe (REC), Gaiker and Delft University of Technology produced a report¹ to the European Commission on the total environmental, economic and social impact of the WEEE Directive, and subsequently made proposals for specific improvements on the collection plus recycling, recovery and re-use targets, the scope and treatment requirements and general improvements on the essential items.

The review process of the WEEE Directive has led to a formal proposal for a revision in the form of a “recast”, as a consequence of both:

- A scheduled review as indicated in the Directive itself
- Being identified as a legislative measure meriting scrutiny in 2008 under the European Commission “simplification of the regulatory environment” programme²

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http://ec.europa.eu/environment/waste/weee/pdf/final_rep_unu.pdf.

² COMMUNICATION OF THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND

The Commission also notes that the experience with the existing Directive has revealed technical, legal and administrative problems.

This White Paper examines the Commission proposal for a recast of the WEEE Directive, as given in COM(2008)810 final³, with reference to among others the findings in the UNU report and experience with the current WEEE Directive from the StEP members coming from all over the world and representing all key-stakeholder groups. This StEP White Paper is intended to take a holistic view on the proposals made from a science-based, but nevertheless applied perspective. It contains further suggestions to enhance the environmental effectiveness, social implication and economic efficiency and illustrates problems of policy coherence that may arise out of the implementation of proposals made and first recommendations to overcome such.

2 Scope, Product Coverage and Definitions

The existing WEEE Directive is legally based on the procedures described in Ar-

SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS - Implementing the Community Lisbon programme: A strategy for the simplification of the regulatory environment, COM(2005)535final, dated 25.10.2005.

³ Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on waste electrical and electronic equipment (WEEE) (Recast), COM(2008)810 final, dated 3.12.2008.

Article 175 of the Treaty establishing the European Union. This is part of the Environment Chapter which specifies the minimum requirements for Member States to follow⁴. As a result there are now differences in the implementation of the WEEE Directive in individual Member States regarding products covered and in some cases also definitions.

Experience with the Directive has indicated that these different implementations have fragmented the internal market and caused unfair competition.⁵

2.1 Scope

The definition of the scope, particularly in the WEEE Directive, affects many of the main provisions like producer responsibility, financing, as well as which products should be collected and recycled, and thus, at the end, the whole environmental performance of the Directive. Potential changes in the scope of the WEEE Directive impact the whole structure and provisions of the WEEE Directive as such, especially considering that *“the objectives of the Community's environment policy are, in particular, to preserve, protect and improve the quality of the environment, protect human health and utilize natural resources prudently and rationally”*⁶.

For the above reasons any approach in the definition of the scope should be tightened with the basic assumptions laid down in the initial recital stating that *“having different national policies on the management of WEEE hampers the effectiveness of recycling policies”*; such assumptions lead,

⁴ Article 176 of the Treaty: “The protective measures adopted pursuant to Article 175 shall not prevent any Member State from maintaining or introducing more stringent protective measures.”

⁵ See e.g. the UNU report, Task 2.1.

⁶ See *Whereas 2* in the WEEE Directive Proposal.

in the same chapter, policymakers to find the rationale for the need of action at community level.

In the recast proposal, the scope refers to the product list given in the corresponding recast proposal of the Restriction of Hazardous Substances Directive⁷ (RoHS, Directive 2002/95/EC). This directive is based on the “Approximation of laws” chapter in the Treaty (Article 95), i.e., harmonisation between all Member States to enable the free circulation of goods and a well-functioning internal market.

While the intention with this shift of product list seems to be to achieve a harmonised product list, there are differing messages given in the accompanying Impact Assessment document from the Commission regarding the result:

- Page 14: “Harmonising the scope under WEEE was supported rather than defining the scope under RoHS; however this would require introducing a double legal basis in the WEEE Directive whereas a similar effect can be reached by referring to the scope in RoHS, already targeting harmonisation of scope.”
- Page 15 is suggesting publishing the list in RoHS: “Increased, but not total, clarity on the scope of products, with the possibility for Member States to expand the scope in their territory.”
- Page 79: “Having a fixed product scope under the RoHS Directive would also provide a level playing field for producers, it would further reduce uncertainty and would have positive impacts on administrative burden.”

⁷ Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the restriction of the use of certain hazardous substances in electrical and electronic equipment (recast), COM(2008)809 final, dated 3.12.2008.

Initial discussions among stakeholders have revealed that there is differing understanding of the result of this shift of the product list. From the point of view of “reducing administrative burdens” it is obviously desirable to ensure that harmonisation is achieved. Therefore StEP recommends that a legal assessment be made, ultimately resulting with recommendations on how to achieve the desired harmonisation. A dual legal base of the WEEE Directive, such that the scope is based on Article 95 would achieve this (as was suggested in the UNU report and by many stakeholders in the studies in the commenting period leading up to the Commission’s formal proposal).

The classification of waste as originating from private households or from users other than private households is left for a comitology procedure. The process for arriving at a decision on this point should be as transparent as possible with one of the major priorities for the outcome being a harmonised approach to the distinction. It is important to note that for producers with products in the “grey zone” e.g. dual use products, the delay in publishing the definitions will mean that they cannot be sure about the provisions of the new directive that will apply to them until such time as the formal decision has been taken. They will therefore have less possibility to properly comment on the proposal during the process in the Parliament and the Council, and they will also have less time to prepare themselves for the obligations that eventually will be placed on them. Similarly, enforcement agencies will have difficulty in preparing to enforce the scope if it is left uncertain for too long and the implementation time is too short before enforcement should take place.

The definition of business to business (B2B) equipment can also be harmonised. Currently registers and compliance

schemes use very different definitions based on a variety of criteria. This means that for every register or compliance scheme producers need to verify what the criteria for B2B and B2C are and this leads to a lot of unnecessary administrative work.

The most accurate way to harmonise these definitions and establish consistency across the EU is to enable producers to determine whether a product is declared as Business to Business WEEE based upon the intended end user of the product. This determination should be based on product-linked criteria and not on the differences in recycling costs between B2B vs B2C, i.e. a product should not be put in a certain category because this results in a lower cost of recycling. Alternatively the criteria developed by DIGITAL EUROPE should be used to differentiate between B2C and B2B products (see Annex I).

2.2 Product Coverage

The categories of products covered by the current WEEE Directive are maintained in the new proposal by referring to Annex I of the RoHS recast proposal. The reference to the list of products within categories, given in Annex II of the RoHS recast, has not been retained. The question arises whether this is intentional or not (as a comparison, in the RoHS recast there is a specific reference to both Annex I and Annex II from its scope).

Without reference to Annex II there will be an “inclusion by default” principle within each category. This has the advantage of including new types of products within the categories as they are developed. To achieve a proportional application of the Directive a formal process should be established whereby certain products can be excluded where their inclusion would not be justifiable.

If Annex II also is intended to apply to the WEEE recast, this should be made clear in the text. One can note that the list is now a “binding list” rather than a “list of products which shall be taken into account”. To allow producers adequate time to analyze and plan for a product’s inclusion to category timetables of proposals and implementation, deadlines should be provided. However it still contains vague formulations like “including” and “such as”. This can lead to differing national implementation of the products that are to be covered unless a mechanism is applied at community level to get a binding agreement on how to treat the “grey area products”. If the implementation of covered products are to vary between Member States a requirement to clearly list all parts of products that are included or excluded, i.e. with video game consoles the inclusion of peripherals and cables should be included in the regulation text.

The Frequently Asked Questions (FAQ) on WEEE and RoHS⁸ excludes “fixed installations”, however these are not mentioned in the current WEEE Directive or the recast proposal. For the sake of clarity and common understanding these should be explicitly excluded (and a definition of “fixed installation” should be provided).

2.3 Definitions

Definitions are crucial for the common understanding of the roles and obligations of different stakeholders. Differing interpretations would jeopardize the functioning of the internal market.

The WEEE proposal makes references to, or copies, definitions used in other EU legal measures to a large extent. This is a

⁸

http://ec.europa.eu/environment/waste/weee/pdf/faq_weee.pdf.

positive suggestion but it still leaves the possibility for differences between Member States. To ensure a common interpretation the “Definitions” section should have Article 95, which concerns the approximation of legislation relating to the single market, as legal basis.

Some definitions are taken from the recently adopted “New Legislative Framework” (NLF), and more specifically the Decision on a framework for marketing of products⁹. Some modifications to the already existing definitions (in the current WEEE Directive) have been made to align them with those in the NLF. In doing so, one needs to carefully examine the consequence so that it does not lead to an unintentional change of the obligations placed on the different stakeholders.

As an example, the definition of “distributor” has been widened to include all entities involved in the supply of a product to an end user, i.e. including any intermediate distributor between the producer and the one supplying the product to the end user. The existing WEEE Directive limits the definition of “distributor” to the entity who provides the product “to the party who is going to use it” (normally understood as the retailer). The actual obligations placed on distributors are related to actions involving private households and end users (Articles 5 and 14 of WEEE recast) and it should therefore be obvious that it is the “final distributor” (the retailer) who has the obligations, and not any intermediate distributors. However to avoid different understanding of the obligations placed on the different actors involved in the supply

⁹ DECISION No 768/2008/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 9 July 2008 on a common framework for the marketing of products, and repealing Council Decision 93/465/EEC.

of a product to the end user, the WEEE recast should be clear in this regard.

The WEEE Directive is a “producer responsibility” Directive. The obligation to respect the requirements of the Directive and national implementing legislation lies therefore mainly with the “producer” of the EEE as defined in the Directive and national implementing legislation. It is therefore important to identify who the producer is to allocate responsibilities properly within the distribution chain. In the recast the Commission has returned to its initial intention for the Directive by reintroducing the concept of an EU producer based either on the act of placing on the EU market and/or brand ownership. Including brand ownership would mean that responsibility could be based on brand ownership as this assumes that brand owners own all the product channels into the EU. In effect this would make brand owners responsible for products they have no visibility to or control of. Although the general trend that the Commission is displaying is encouraging and supported by a wide range of stakeholders the detail is lacking and will lead to numerous different implementations. Member States have also been clear that they wish to keep the national producer definition; without Article 95 implementation it is unlikely that the proposals will be adopted. The Commission proposal should be viewed in conjunction with its proposals in Article 16 for registration and reporting which focus on interoperability of national registers.

The terms “single functional unit” and “function” are now introduced in the scope but have not been defined. In the application of the FAQ document these terms have been found to lead to different interpretations. Common definitions of such terms at community level would be beneficial.

3 Collection Rate

Collection of e-waste and its recycling, thereby helping to ensure diversion from landfill, is at the heart of what the WEEE Directive is all about. It is essential to ensure that diversion of WEEE waste from the landfill continues, but many companies institute non-landfill waste policies and Directive language should work to move past this and further target the diversion of WEEE from environmentally harmful waste streams. In particular, incineration of WEEE in facilities without environmentally sound air pollution control equipment (e.g. scrubbers and baghouses) and illegal dumping lead to adverse environmental effects which should be addressed in the recast. In addition, it has been widely acknowledged that the weight-based 4 kg per inhabitant target has been easily met by many Member States and has not provided any incentive for improving the current system. Moreover, improving collection rates for WEEE corporation collection schemes and re-use/refurbishment programmes to divert waste should be acknowledged.

The Commission proposal seeks to inject the incentive for innovation by making producers responsible for achieving the revised collection target of 65% of the average weight of product placed on the market in the previous two years. Many corporations take the stance that it is not reasonable to set collection rates for a company that cannot dictate consumer actions. Collection rates may be obtained by increasing public awareness and product re-use/refurbishment programmes. Although there is support from a wide range of stakeholders for more products to be collected it should be closely examined whether this proposal will achieve the desired results and what potential adverse side effects will be caused. It might again result in low collection rates of small ap-

pliances such as mobile phones, MP3-players, hair-dryers, toasters etc. of relatively low-weight but through their intense production and wide consumption of rather importance for the environmental efficiency of the Directive. Small appliance collection rates can be improved by increasing public awareness of WEEE recycling and re-use opportunities.

Also, for product categories having a long life span (10-15 years) and with an increase in yearly sales, the amount of waste produced (i.e. products which were placed on the market 10-15 years back) may not even amount to 65 % of the sales 2-3 years back, even if all of the waste is collected. In the case of e.g. screens due to the change from CRT to flat panels, a unit based approach appears more relevant than a weight based approach. Thus taking the reference years as the 2-3 previous years' sale may not be feasible for some product categories and a waste oriented division/grouping would make much more environmental sense.

As one overall collection target for all product categories could lead to very low collection of certain individual products, more specific collection targets per product category should be developed.

A very interesting report published by the combined Dutch WEEE recycling systems¹⁰ showed that of the 18.5 kg of e-waste arising per inhabitant per year, 14.8 kg is actually recycled which is over 80% of the total arising. The issue that they highlighted was that only 5.7 kg, 31% of the total recycled, is treated through producer funded compliance schemes. This clearly shows that there are very substantial flows of WEEE that are being processed and

treated outside of the official collections systems and not included in the current collection calculations. Only by addressing these 'unofficial' channels will the Commission be able to achieve its goal of achieving a higher "official" collection rate.

In view of the study above it would seem that it would be impossible for producers to meet the new collection targets without an obligation on all stakeholders handling WEEE to pass it to official producer compliance schemes or individual systems

The Commission should seek to ensure that all WEEE that is collected and treated is represented in the data that is submitted by the national registers to the EU and not just the WEEE handled by producer compliance schemes, whether individual or collective.

Once this has been achieved it will be possible to understand better at what level the target should be set and who should retain responsibility for meeting this target, Member States or producers. It is important to note that within the already existing text of the Directive is an obligation on Member States to report on "quantities and categories of electrical and electronic equipment placed on their markets, collected through all routes" which should be better enforced. For outside schemes operating entities it should be mandated for them to report to either one of the schemes or the government agencies.

It should anyway be highlighted how an important role is also played by reporting WEEE collected (first) and treated (afterwards). According to the official reporting standards of the EU defined in Commission Decision 2004/249/EC and Commission Decision 2005/369/EC reporting of EEE placed on the national market, collected from private households, collected other than from private households, treated

¹⁰ Witteveen & Bos (2008) Onderzoek naar complementaire afvalstromen voor e-waste in Nederland.

in the Member State, treated in another Member State, treated outside the EU, recovered, re-used & recycled and finally re-used as whole appliances is all done per product categories (1 to 10). In almost all Member States waste streams are more or less not reflecting product categories, but treatment categories (Cooling & Freezing appliances, CRT, lamps, Large Household appliances, Mixed electronics mainly): reporting back the waste streams to product categories is currently done by means of samplings¹¹ or other procedures. This leads to further uncertainty on how the 65% collection target could be calculated and assessed for some product categories having, in different years, considerable differences in amount put on market and those arising and being collected as waste.

Within the US many collection sites track WEEE by brand as it enters the waste stream, and the manufacturer specifies it to a category in a reporting system. Many other systems utilize trading credits for amounts of WEEE collected and processed to encourage more robust participation.

Therefore it is strongly recommended, also from a simplification point of view, to bound and re-specify the collection target to the 5 or 6 described waste treatment categories used in practice as also formulated as a key advice in the central table in the conclusion of the UNU report.

This does not infer that the scope of the Directive should be altered. Reducing the scope of the Directive to the 5-6 waste treatment categories would mean that producers would finance mixed WEEE containing many products outside a producers product range. This would move the WEEE Directive away from the principles of Producer Responsibility and therefore provide a barrier to eco design. The broad

categories suggested would conflict with the principles of individual producer responsibility. A waste stream oriented scope is not future proof. Advances in recycling technologies could change the required collection groups, in order to optimise recycling and provide a purer recyclate. A waste stream oriented scope based on today's collection and treatment practice could therefore be a barrier to innovation. Also, a reduction of waste categories should not result in lower re-use/recycling and recovery targets. If this were to happen, it seems logical to either increase the targets of the waste category concerned or to transfer some individual products to a waste category where the re-use/recycling and recovery targets are the same as in the Commission's proposal.

We also assume that comitology will be required to work out the details of the collection target mechanism, i.e. whether it will be applicable to product categories individually rather than for all equipment as a whole. In that respect, and in order to fully assess performances achieved within each Member State and effectiveness of the Directive as such, a common, reliable and consistent reporting framework with harmonised definitions should be better established and made publicly accessible.

In view of the fact that the revised target is proposed to be implemented for 2016 there needs to be a focused effort now on enforcement of the Directive as it is currently implemented to ensure that as the EU moves towards the implementation of the new target, more of the waste currently deposited at collection points actually makes it way to the approved recycling facilities. The focus should be on bringing the 67% of waste currently identified as moving to the informal channels back into the formal WEEE process and to approve treatment facilities enabling it to be re-

¹¹ Defra (2007), Trial to establish waste electrical and electronic equipment (WEEE) protocols.

ported officially within the recycling statistics.

4 Shipments

The illegal export of WEEE is a major challenge which is difficult to address within the current framework of the Basel Convention. Indeed, by declaring EEE products re-usable which are actually not re-usable, brokers can illegally bypass the Convention on the Control of Transboundary Movements of Hazardous Wastes. Since it is extremely difficult for customs to watch the flow of exported WEEE and to detect illegal exports, a radical solution would be to forbid all exports of discarded EEE. However, this provision would penalize firms engaged in EEE take-back, or NGOs involved in activities seeking to bridge the digital divide by delivering second-hand refurbished EEE to developing countries primarily for the support of education. Moreover it should be noted that the expansion of the life-time of certain products through a second and third life should be welcomed reflecting the environmental burden during their production.

The aforementioned proposal (COM(2008)810 final) for a new WEEE Directive includes an Annex I on “Minimum monitoring requirements for shipments of WEEE” which seeks to formalize within a legal framework the correspondence guidelines to the Waste Shipment Regulation. It suggests a number of steps to identify what is actually used EEE. According to these new provisions any product, even though it may still be fully functional, may be categorized as waste, unless the four provisions of the Annex can be met.

It is important to note that upon a detailed reading of Annex I, it clearly seems to deal

with the requirements for shipments of used EEE rather than WEEE, which is already dealt with in the Waste Shipment Regulations.

The Commission has decided not to formalize the distinction clearly made in the correspondence guidelines which sets differing requirements for fully functional used EEE destined for direct re-use and used EEE being sent for repair. All used EEE will not have to meet the more stringent requirements. One example of how this may be impractical is the requirement to have tests performed on the item being shipped to show that key functionality works. For products being sent for repair this may not be possible since the knowledge and expertise to perform the tests are only located in certain locations around the world. This would mean that all shipments sent for repair would be considered waste and would therefore be much more difficult, or practically impossible, to move transboundary, which would have serious consequences on the re-use activities of producers.

A similar situation arises for complex B2B products which can only be tested or examined for re-use of product or parts (e.g. as spare parts) at specific locations under manufacturer control. With the current WEEE recast proposal there is a risk that products will be sent for direct recycling rather than investigating its potential for re-use. In following the “waste hierarchy” of the EU Waste Framework Directive¹² a balance should be found in administrative obligations related to the transportation of complex B2B products from their place of use to the manufacturer’s point of examination for their potential re-use (of whole products or parts thereof) such that it be-

¹² Article 4 of Directive 2008/98/EC.

comes economically viable to follow the waste hierarchy.

One of the major difficulties of this proposal lies in the enforcement of these provisions which is why the Commission is seeking to ensure that all shipments have the necessary documents affixed to the packaging.

It is strongly recommended that the Commission ensure that the repair and refurbishment of products remains a practical possibility to ensure that the re-use market continues to grow and the reliance on virgin raw materials for new products can be reduced. This could be achieved by retaining a difference between used EEE destined for direct re-use, used EEE destined for repair and WEEE. Solutions should be found to certify that export routes for WEEE and EEE for re-use and repair are trustable by all stakeholders. As off-standard treatment of WEEE can typically be problematic at the final step of treatment, the export of WEEE should especially be monitored until the very last step of the recycling process. StEP is working on the development of such standards taking into account differences in industrialized and developing countries, both for re-use and recycling.

5 Treatment and Recovery Targets

Manufacturers of electrical and electronic equipment and recyclers need to be able to apply best available treatment technologies and to explore the economies of scale of the end-of-life treatment. Too detailed regulation slows down the development of recovery / recycling practices and technologies. Legislators should instead set environmental objectives for waste treatment without a detailed description of techniques, i.e. Annex II in its present form

should be removed from the WEEE Directive or replaced with a list of the environmental objectives.

We support the introduction of mandated treatment standards, setting effluent limits for processes in line with the BAT-BREFS already applied, and where relevant certain quality aspects regarding the result of different processes. The recycling process is an industrial process in its own right and should be treated as any production process striving for cleaner production. Hence, the treatment standards should not only focus on management aspects, but also the techniques and technologies in place. The latter will definitely require regular updates.

Use of treatment standards will enable producers to more easily ensure that Article 6.1 is complied with (they are formally responsible for the quality of treatment of their WEEE). Standards will also support use of proper treatment processes on a global level, as producers operating on a global market can make use of them as references in their negotiations with treatment partners in other regions as well.

As for reporting standards for collection targets, a lack of common procedures and methodologies exists in order to establish a level playing field when it comes to the reporting of achieved results in terms of treatment output and recovery and recycling percentages. For some product categories ending up anyway in the same waste streams and ultimately treated together, different recovery and recycling percentages exist (e.g. products falling into categories 3 and 4 – having a 70% recycling target – compared to categories 2 to 9 having a 55% target).

Furthermore a reliable reporting framework for output fractions should be established in order to prevent misleading figures on recycling performances of recyclers (within and outside EU) as well as

Member States; this applies in particular in the case of different definitions of “recycling” according to different national legislations. It should be noted, however, that efforts at harmonisation have been made in the past by different stakeholders such as tools that have been developed by organisations to facilitate treatment partners reporting their recycling/recovery performance on the basis of a list of harmonised definitions of technologies and input/output fractions.

Another key aspect relies on the establishment of a common tracking system for downstream fractions resulting from the treatment processes. As extensively detailed in Chapter 10.3 of the UNU report, a basic issue is whether a definition of recycling is based on individual materials (iron, aluminium, glass, copper, plastics etc.) as such or on the basis of different, possible, destination of fractions which result from the treatment. Does the CRT fraction as output of a treatment process count as recycled irrespective of the downstream destination of such fractions? Taking into account this CRT glass case, secondary CRT production, using in Cu/Pb smelter, replacing feldspar in ceramic industry, sand in building industry or land-filling are all feasible options. However, they have totally different recovery percentages – notwithstanding that such destinations are allowed under different national legislation as recycling options – and environmental impacts. In addition, the meaningfulness of this is questionable in cases where there is no longer an environmentally sound market for the recyclable materials in the most preferred final destinations. This calls for an explicit formulation of the environmental aims of the Directive, even in general terms (e.g. the leaching of lead from CRTs into the environment should be avoided), and for a more dynamic approach using recycling standards for the industry. It can

however not be recommended to lower standards or recycling/recovery rates due to an expected lack of processing capacity or demand, or due to the high(er) cost an environmentally sound recycling solution brings about.

Recovery & Re-use targets

The recast directive has increased the recovery rate percentage and the re-use and recycling rate percentage by 5% across all categories. A positive change to the wording has been to acknowledge that these percentages are to be based on the total WEEE separately collected as well as the product that is prepared for re-use. This removes some of the disincentive of producers and collective compliance schemes to divert products away from recycling by ensuring that they are included in the calculations of the targets set out in Article 11.

An actual realistic target level for re-use is hard to measure but potentially could be no less arbitrary than setting recycling targets. The UNU WEEE Revision Study did not support the introduction of re-use targets. The potential for re-use varies greatly between categories, sub-categories and even within sub-categories. Hence re-use targets are only meaningful when connected specifically to the relevant categories and sub-categories. Currently the main proponents of re-using equipment are in the B2B sector where product lifecycles are longer and relationships between the manufacturer and user are maintained to try to ensure return of the product. Given the potential importance of re-use from an environmental sustainability perspective it is vital that the WEEE recast should not place inappropriate burdens on the re-use product stream.

There is a lot of debate about the merit of combining the targets for re-use and recycling in one number. Some stakeholders

claim that a lack of specific re-use targets will perpetuate a system where very little official re-use occurs. Others point out that a lot of re-use, especially of consumer products, takes place outside the control of the WEEE Directive and is driven by consumer to consumer sales. It is also important to note in the B2B area producers have been engaged in re-use operations for a long time. Therefore since products have a varying re-use potential depending on their category, quality and whether they are from the business or domestic market, it may not be possible to set meaningful specific re-use targets. It is also important to note that the economic viability of re-use diminishes rapidly with the aging of ICT products. Storage by the first user reduces the resale potential of products even further. Most products that have been discarded through municipal waste collection points have little or no value and therefore cannot be re-used. The amount of ICT WEEE which is 'technically re-usable' (it works and can be sold to another user) is 0.55%.

Re-use of EEE or its components is to be seen in the context of the waste hierarchy, wherein the avoidance of waste generation is seen preferential to activities of waste processing, namely recovery of materials and energy and ultimately disposal. However, one has to consider that this may not always be true from an environmental perspective as the increased energy usage caused by extending the lifecycle of the product may outweigh the potential positive effect. By extending the use phase of EEE or its components with a distinct potential for re-use¹³ though, and, thus, sub-

stitute for the use of newly produced EEE or its components, re-use is seen as a form of avoidance of waste generation. A detailed product specific analysis considering the involvement of the private sector as well as charity organisations should take into account background and all influencing factors to determine whether re-use is advantageous to recovery alternatives.

Another important concern that has been raised on setting specific re-use targets is that it may lead to a reduction in overall global recycling because producers will be focused on ensuring their products are re-used. Since the main re-use markets are outside of the EU it may be very difficult to ensure that these products are properly recycled when they do finally reach the end of life. Member States are also asked to harmonise policies on who/how to prove that items are EEE for re-use rather than WEEE. Countries where public authorities are obliged to do so might otherwise easily continue to function as "transit" countries for illegal shipments of WEEE, marked as re-usable EEE, simply because of the lacking capacities of public authorities for inspections.

The goal of promoting more re-use is potentially hindered by the requirements of Annex I of the recast to provide evidence that items being shipped are fully functional. If not fully functional the products would need to be transported as waste which would significantly increase the administrative and financial burden associated with repair operations. Annex I seems to have omitted any consideration for the fact that sub-assemblies and board level components are commonly shipped across borders to producers and their repair centres. Many products, sub-assemblies

¹³ See StEP White Paper 'One Global Understanding of Re-use - Common Definitions', <http://www.step-initiative.org/publications/index.php>: The *potential for re-use* is defined as the ability and advantageousness of electrical and electronic equipment or its components to be re-used. In general, the *potential for re-use* is composed of five

dimensions: (i) Technologic, (ii) economic, (iii) ecologic, (iv) social and cultural and v) legal aspects.

and boards can only be properly tested at OEM facilities or very specialized repair centres.

However, the re-use of non-RoHS-compliant EEE in non-OECD-countries is a serious concern, as these countries do not have a collection, pre-processing and end-processing infrastructure, equaling the standards aimed for by the EU.

As re-use of non-RoHS-compliant EEE in non-OECD-countries will consequently result in no or sub-optimal recycling at the product's final end-of-life, re-use of such products should – by the time that the recasted WEEE Directive will enter into force - be discouraged, albeit forbidden.

6 Financing

Financing of downstream e-waste activities and allocation of economic responsibilities along the downstream chain has proven to be challenging in countries with existing take-back schemes and in countries discussing potential take-back system architectures¹⁴. The way stakeholders financially contribute to different activities varies and many models exist. From a general perspective, there are three main stakeholders who could bear financial responsibility for end-of-life electronics products:

- The entire society: As e-waste is a societal problem, having impact not only on consumers but also on the entire population (both in terms of environmental and societal impacts), systems could be financed by the entire society (i.e. by taxpayers)
- The consumers: This could be seen as an implementation of the “polluter pays

principle”, whereby the polluter is recognized as the person responsible for discarding an end-of-life appliance

- The producers: This is implementation of various degrees of the extended producer responsibility principle. It could also be argued that even though a producer may bear “by law” financial responsibility, customers will eventually pay the end-of-life costs as an increase of the product price, even when no upfront external charges are paid at point of sale

In all cases, there is a very direct link with who pays what and how much, and responsibility plus willingness to act as intended.

It should be noted that in *whereas 19* of the current proposal it reads:

“Member States should encourage producers to take full ownership of the WEEE collection in particular by financing the collection of WEEE throughout the whole waste chain, including from private households, in order to avoid leakage of separately collected WEEE to sub-optimal treatment and illegal exports, to create a level playing field by harmonizing producer financing across the EU, to shift payment for the collection of this waste from general tax payers to the consumers of EEE in line with the polluter pays principle”.

It seems that a recognized, societal problem (i.e. leakage of separately collected WEEE to sub-optimal treatment and illegal exports) should be addressed by one stakeholder (i.e. the producer, taking full ownership), but the financing should enable the shift of payment from taxpayers (i.e. the society) to consumers, seen as the polluters. It is quite a substantial change in the approach, moving from the extended producer responsibility principle to the polluter pays principle, as the producer is not identified as the “polluter”.

¹⁴ See StEP White Paper on Take-back systems, <http://www.step-initiative.org/publications/index.php>.

One might argue that a polluter can be interpreted in many ways such as:

- The consumer, who by replacing EEE very often (i.e. mobile phones) stimulates the use of natural resources; or who improperly discards end-of-life EEE and prevents them from going into the official system
- The retailer, who refuses to take back end-of-life EEE irrespective of a sale of new equipment
- The municipality, who by not maximising collection, through a) not providing easily accessible, free of charge collection points for consumers, b) not educating local consumers on easily accessible waste collection points, c) not preventing/ avoiding illegal trading and d) diverting potentially profitable items is undermining a effective and efficient recycling system
- The policy makers, when not providing a legislative framework in line with legal obligations of different stakeholders
- The recycler, when not developing "best available" technologies and practices, when not diligently monitoring practices for outgoing material fractions; when not avoiding illegal secondary trading with its associated partners

Who is then the polluter? Any stakeholder in the chain not fulfilling his own responsibilities could be regarded as polluter. But how, and why could the system design be optimised?

The impression is created that putting the responsibility for the WEEE issue with one single stakeholder (the producer) is considered a convenient way to shift the burden of financing from the Member States to producers. This is despite the fact that producers are not the only stakeholder in the waste system.

Together with the suggestion to put the responsibility with the producer, the visible fee is offered as a permanent option for financing even after the current deadlines of 2011 and 2013. The use of the visible fee mechanism is seen as a financing option for certain categories of WEEE by some producers. The "visible fee" is proposed to be allowed indefinitely, to indicate the costs incurred for the end-of-life handling of products. Under the existing Directive, some Member States have introduced this as a mandatory requirement for household products. The use or not of the "visible fee" is somewhat controversial, and therefore many further discussions are needed to determine the best way forward. One can note however that as currently written, there are large uncertainties regarding how to calculate the actual costs. Therefore, if the visible fee is retained, a common methodology explaining how to calculate the costs should be agreed upon by all stakeholders. This is particularly important if the information is intended to further specific policy objectives as suggested in Recital 20 (smarter consumption and green public procurement). It should also be noted that for products where the cost of recycling is low, the display of the visible fee adds a further financial burden due to the administrative burden attached to the use of the visible fee. The visible fee was introduced as a mechanism to manage the cost of historic WEEE. Having the ability to internalize the costs allows for fluctuations in costs to be promptly reflected in the price to the consumer. The display of fees, if retained beyond 2013, should at least be made voluntary and not mandated in national implementations of the WEEE recast.

An additional angle to the proposed continued use of the visible fee is the possible expectation that this will compensate producers for the cost of access to WEEE which is typically collected by other stake-

holders. This in fact – as can be seen from the situation in the UK¹⁵ – potentially leads to profiteering by parties with access to waste once combined with a mandatory collection target. Producers will have no choice but to buy waste (at non realistic prices from waste collecting organizations) to be able to meet the collection targets. The additional costs will ultimately be borne by the consumers.

7 Information

There are a number of requirements in the WEEE Directive regarding information to be provided by manufacturers to users, treatment facilities and Member States for different purposes. Some requirements are directed towards Member States with the possibility for them to pass on the requirements to producers and distributors. The WEEE recast has retained these requirements to a large extent in an unchanged form.

Recital 21 underlines the importance of the diffusion of information to users about the following requirements

- Not to dispose of WEEE as unsorted municipal waste
- Collect WEEE separately

Moreover, Recital 21 emphasizes the importance of collection systems and their role in the management of WEEE.

It also stresses that “Such information implies the proper marking of electrical and electronic equipment which could end up in rubbish bins or similar means of municipal waste collection”. The consumer should not need to look at the mark “crossed waste-bin” placed on a product to know that it is EEE and that it needs to be

¹⁵ See Repic news site at: http://www.repic.co.uk/news_article.asp?a=57.

treated as such. There is a great need to raise the awareness of consumers so that they can understand what EEE is and that it needs to be treated separately from municipal waste. Further assessments on the present means in place are needed in order find out what works and what does not and how the consumer can be best sensitized. This will inform the initiation of effective education campaigns under the responsibility of the Member States, but developed by e.g. retailers and compliance schemes.

8 Registering and Reporting

Registration and reporting is one of the tasks that have created the largest administrative burden for producers. Any effort to reduce the burden and render the system more efficient is welcomed by many stakeholders. It is unclear however whether the current proposal will achieve an overall administrative burden reduction or just a shift of the burden away from producers and onto national registers.

The proposal would create a system that allows producers to register in one country and then report products placed on the market in other Member States which would be a radical shift from the present system. It would then require the register to be interoperable to be able to exchange information submitted by producers.

Importantly it also creates a new requirement to report on intra-community transfers of products with not only data being transferred but also the fees associated with that product. Since the fees per product vary greatly by Member State, it is unclear how this would be operationalised. It would potentially create a possibility for less reputable producers to choose to market their products in the Member State with the lowest fees. From a data perspective

this would allow Member States to more accurately predict the amount of e-waste that will arise on their territory. What is not clear is whether the huge additional burden in terms of data provision is proportionate to the benefit.

The changes to the registration and initial reporting of the quantities of EEE put on the market will be welcomed by producers but may be resisted by national registers and seems to do little to reduce the overall level of administrative burden for all actors.

It is also important to note that implementation under Article 175 will not work for this article since the proper functioning of the proposed system would require all Member States to implement the same provisions.

9 Responsibilities

We have discussed in Section 6 and 7 the difficulties of financing WEEE take-back systems and of providing information about the e-waste problem and how to solve it. Here we discuss how to make relevant stakeholders exert their responsibilities to achieve this objective. Two of the five principles of the WEEE Directive are the polluter-pays principle and the extended producer responsibility (EPR) principle. In whose hands lie these responsibilities? Consumers could be mentioned as barriers to increased collection rates. One reason that could explain low WEEE collection rates is the low level of consumer awareness about e-waste. The responsibility of awareness-raising lies in the hands of Member States:

Art. 14.2.

Member States shall ensure that users of electrical and electronic equipment in private

households are given the necessary information about:

- (a) The requirement not to dispose of WEEE as unsorted municipal waste and to collect such WEEE separately
- (b) The return and collection systems available to them
- (c) Their role in contributing to re-use, recycling and other forms of recovery of WEEE
- (d) The potential effects on the environment and human health as a result of the presence of hazardous substances in electrical and electronic equipment
- (e) The meaning of the symbol shown in Annex IV.

Is the WEEE Directive providing enough incentives to raise awareness? Its Annex IV specifies that the symbol for the marking of EEE (a crossed-out wheeled bin) must be printed “visibly, legibly and indelibly”. Are these provisions enforced by producers when designing their products? Nevertheless, one may argue that being informed does not necessarily lead to responsible behaviour, especially when there is a deficit of information. Could other instruments, such as the visible fee, enable changes in the behaviour of consumers and increase collection rates? In other words, how can the revised WEEE Directive enable such changes and empower consumers so that they exert their responsibility? Or is this responsibility misplaced and should rather be borne by producers, for example with a reinforced EPR?

The new directive proposal suggests that “Member States should encourage producers to take full financial ownership of the WEEE collection” (p. 16). Instead of extending the EPR, would it be more efficient to opt for an individual responsibility of producers (IPR), which may encourage innovation? Some argue that since only producers have the capacity to make changes at source to reduce the environmental impacts of their products, they

should be allocated this extended responsibility.¹⁶ But would such a move trigger eco-design? Should all provisions on the latter be transferred to the 2005/32/EC directive on eco-design, which encourages DfR? As the directive already mentioned before its recast (p. 15):

“The establishment, by this Directive, of producer responsibility is one of the means of encouraging the design and production of electrical and electronic equipment which take into full account and facilitate their repair, possible upgrading, re-use, disassembly and recycling.”

It is recognized that the principle of individual producer responsibility could be an important tool in encouraging producers to have regard to the end-of-life management of their products at the stage of product design.

Collective producer responsibility - where all producers are jointly responsible for the recycling of all products, including the products sold in the future - does not seem to provide an incentive to a producer to design products to be easier to recycle.

According to a report for the European Commission a number of Member States have failed either to transpose or implement IPR¹⁷. The incentive to encourage producers to focus on design for recycling is absent. This jeopardises the attainment of the directive's objectives.

The European Commission's proposal for a WEEE Recast provides a continued com-

¹⁶ See report by researchers from the International Institute for Industrial Environmental Economics, <http://www.greenpeace.org/raw/content/international/press/reports/epr.pdf>.

¹⁷ Sander, K., Schilling, S., Tojo, N., van Rossem, C., Verson, J. and George, C. (2007) The Producer Responsibility Principle of the WEEE Directive Final Report (Ökopol, Germany)

mitment to eco design through the design incentives provided by IPR. This sends a clear signal that Member States need to continue working on the proper transposition and remove barriers for the implementation of IPR in practice.

IPR is intended to provide producers with design incentives – for producers to seek competitive advantage by achieving better design for recycling outcomes than their competitors. The WEEE Directive (Article 4) also recommends the establishment of design requirements in the form of minimum standards applying consistently across all producers. Whilst IPR should be retained within the WEEE Directive, some have suggested that design requirements could be placed more effectively into the EuP Directive which would enable eco-design requirements to be performed from an integrated environmental point of view addressing all life-cycle phases.

This debate relates to the aforementioned Annex I on the new provision about shipment. Annex I uses the WEEE Directive to improve the enforcement of the Basel Convention. Thereby, it contributes to increase the coherence of European and international e-waste regulations, and eventually to ensure their contribution to solving the e-waste problem. Therefore, highlighting in the WEEE Directive the role innovation and its related support policies can play in solving the e-waste problem might contribute to reinforce the coherence and efficiency of e-waste policies.

Additionally, monitoring by Member States themselves is proven to be lacking so far and highly needed to avoid environmental damaging and illegal exports.

** StEP is re-visiting the entire issue of IPR as such and will follow up on this with organized research in the future*

Annex I: Criteria developed by DIGITAL EUROPE to differentiate between B2B and B2C products

Producers shall declare EEE sold to private households or sold to users other than private households when placing a product on the market based on the intended end user of the product according to the following criteria:

- a) Evidence in the form of signed contract between the business user and the Producer (or party representing the producer e.g. reseller under contract), that clearly assigns responsibilities for end-of-life collection and treatment costs, ensuring that the EEE will not be disposed of through municipal waste streams

or

- b) EEE that due to its features is not used in private households and that will therefore not be disposed of through municipal waste streams. This criterion should be supported by at least one of the following criteria:
 - a) EEE that is operated by specialised software as for example an operating system or system environment requiring a special configuration for professional use.
 - b) EEE operating at a voltage or having a power consumption outside of the range available in private households
 - c) EEE requiring professional licenses to operate, e.g. Base Stations requiring the license of the telecommunication regulator
 - d) EEE of large size or weight requiring to be installed and de-installed or transported by specialists
 - e) EEE which requires a professional environment and/or professional education (e.g. medical X-ray equipment)
 - f) EEE in category 10 of Annex I of Directive 20xx/xx/EC (RoHS, COM (2008)809/4)
 - g) EEE outside of the scope of the General Product Safety Directive for Consumer products
- c) EEE provided to a consumer but by its nature once used has to be returned to commercial facilities for processing and hence never appears in the domestic waste stream (for example one time use cameras)

StEP White Papers

Number	StEP Task Force	Title	Date
#1	TF 1 “Policy”	E-waste Take-back System Design and Policy Approaches	28 January 2009
#2	TF 3 “ReUse”	One Global Understanding of Re-use – Common Definitions	5 March 2009
#3	TF 1 “Policy”	On the Revision of EU’s WEEE Directive - COM(2008)810 final	1 October 2009, revised 22 March 2010

All StEP White Papers are online available at <http://www.step-initiative.org/publications/>

About the StEP Initiative:

Our name is our programme: solving the e-waste problem is the focus of our attention. Our declared aim is to plan, initiate and facilitate the sustainable reduction and handling of e-waste at political, social, economic and ecological levels.

Our prime objectives are:

- Optimising the life cycle of electric and electronic equipment by
 - improving supply chains
 - closing material loops
 - reducing contamination
- Increasing utilisation of resources and re-use of equipment
- Exercising concern about disparities such as the digital divide between industrialising and industrialised countries
- Increasing public, scientific and business knowledge
- Developing clear policy recommendations

As a science-based initiative founded by various UN organisations we create and foster partnerships between companies, governmental and non-governmental organisations and academic institutions.

StEP is open to companies, governmental organisations, academic institutions, NGOs and NPOs and international organisations which commit to proactive and constructive participation in the work of StEP by signing StEP's Memorandum of Understanding (MoU). StEP members are expected to contribute monetarily and in kind to the existence and development of the initiative.

StEP's core principles:

1. StEP's work is founded on scientific assessments and incorporates a comprehensive view of the social, environmental and economic aspects of e-waste.
2. StEP conducts research on the entire life-cycle of electronic and electrical equipment and their corresponding global supply, process and material flows.
3. StEP's research and pilot projects are meant to contribute to the solution of e-waste problems.
4. StEP condemns all illegal activities related to e-waste including illegal shipments and re-use/ recycling practices that are harmful to the environment and human health.
5. StEP seeks to foster safe and eco/energy-efficient re-use and recycling practices around the globe in a socially responsible manner.

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