Work Package 6: Recommendations

Deliverable 6.3

Recommendations for the WEEE treatment and waste management industry

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EXECUTIVE SUMMARY

With a multi-faceted insight into the current situation regarding WEEE exports and mismanagement, the consortium developed a set of 16 clusters of recommendations tailored for different stakeholder groups that were split among four Deliverables. Deliverable 6.1 largely covers recommendations related to the EU legal framework, Deliverable 6.2 covers recommendations for law enforcement organisations, Deliverable 6.3 comprises recommendations for the WEEE treatment industry, and Deliverable 6.4 outlines recommendations for the electronics industry. In order to ensure the full implementation of the proposed recommendations as well as to guide the European Commission's future Research and Development efforts, Deliverable 6.5 provides a roadmap for future research and technology development.

This 16 recommendation clusters are visualized in a roadmap diagram (Figure 1). The approximate time required to implement these and the target stakeholders are illustrated in the diagram. In addition it distinguishes between the recommendations that are mostly support measures, support policies and those recommendation clusters that are primarily focused at support for law enforcement.
This deliverable deals with the recommendations involving the WEEE industry, mostly comprising WEEE recyclers and the preparation for reuse activities. These are relevant actors in the WEEE value chain and their role and expertise become significant assets for the fight against WEEE illegal trade.

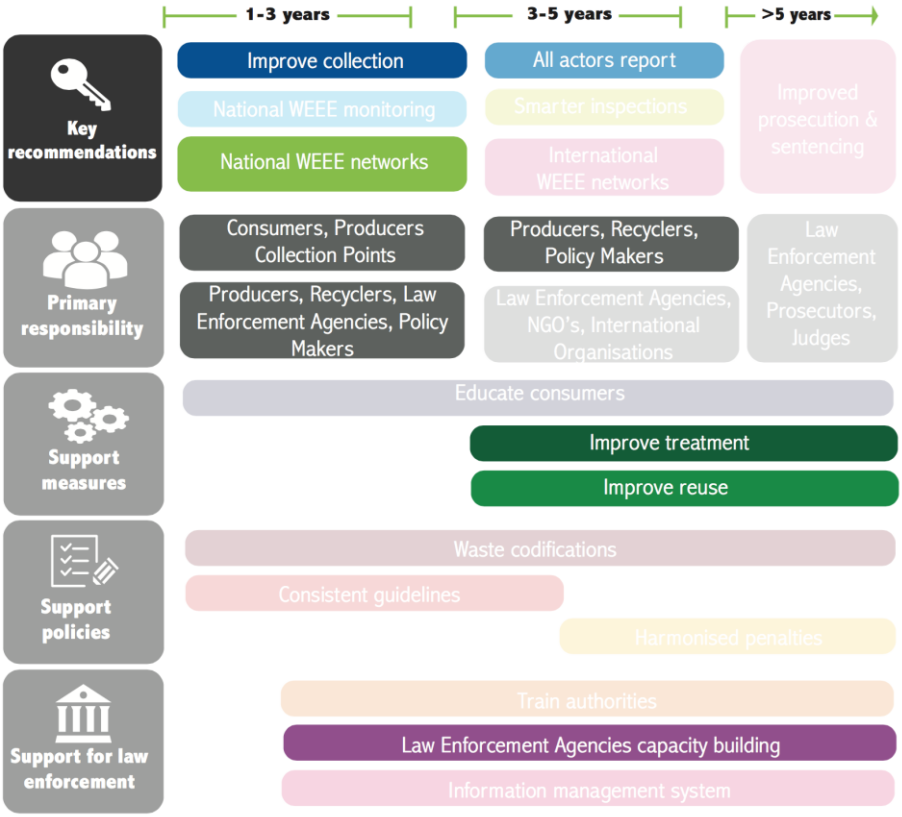

Figure 1. Roadmap diagram (recommendations appearing in D 6.3 are shown in bright colours)

The main recommendation clusters and related actions include:

- Improve treatment
  - Action: Implement (mandatory) WEEE standards
  - Action: Improve reporting on treatment within and outside Europe
  - Action: Improve the economics of depollution
- Improve reuse
  - Action: Harmonize definitions for reuse, preparation for reuse and refurbishment

    - Action: Harmonize preparation for reuse standards and guidelines
- Set reuse targets
    - Action: Provide training and enhance capacity building for the refurbishment/reuse industry
- Improve collection
    - Action: Increase the number of collection points
    - Action: Introduce Ban on cash transactions
- Improve national cooperation (National WEEE networks)
    - Action: Establish a National Environmental Security Task Force (NEST)
    - Action: Enhance multi-stakeholder networks
- Establish guidelines for capacity development for law enforcement agencies (LEAs)
    - Action: Establish public-private partnership scheme
- Improve treatment in developing countries for domestic e-waste
- Improve reuse in developing countries
    - Action: Establish pre-authorised reuse centres
- Other specific items for consideration for developing countries

One of the main recommendations cluster in Deliverable 6.3 deals with the improvement of treatment. While many laws already affect treatment in Europe, a specific challenge is that many of these requirements do not positively impact the legitimate industry over non-regulated players. This is a specific concern for many requirement demanding improved reporting and monitoring and thus adding costs over those operating not working at higher standards when supervision or other mechanisms are lacking. As a consequence, unqualified treatment operators put responsible recyclers at a disadvantage. Initiatives must therefore be designed to support the legitimate treatment industry. Some of the improvement actions focus on (mandatory) WEEE treatment standards, WEEE reporting, incentives promoting proper treatment and WEEE treatment beyond EU borders.

The reuse industry falls also within the scope of Deliverable 6.3. The following actions affecting this particular industry section are described in this document:

- Use harmonised definitions for reuse, preparation for reuse and refurbishment;
- Harmonised reuse standards and guidelines; and
- Provide training and capacity building for the refurbishment/reuse industry;

More recommendations involving the WEEE industry are briefly included in this deliverable and belong to clusters that are further described in Deliverables 6.1, 6.2 and 6.4. This group of recommendations comprises the support and participation of the WEEE industry in the improvement of WEEE collection through legitimate channels and providing the expertise and intelligence of the WEEE industry to multi stakeholder networks. WEEE managers usually know the intricacies of the sector very well like the drivers and behaviour behind the illegal trade of WEEE as well as the actors involved. This is relevant information for enforcement agencies and the sharing of such information will create synergies between stakeholders.

1 INTRODUCTION

The research undertaken by the Countering WEEE Illegal Trade (CWIT) project found that in Europe, only 35% (3.3 million tons) of all the e-waste discarded in 2012, ended up in the officially reported amounts of collection and recycling systems. The other 65% (6.15 million tons) was either:

- Exported (1.5 million tons);
- Recycled under non-compliant conditions in Europe (3.15 million tons);
- Scavenged for valuable parts (0.75 million tons); or
- Simply thrown in waste bins (0.75 million tons) (see details on CWIT Deliverables 4.3, Report on the dynamics of WEEE stream and 5.2, Volume of WEEE Illegally Traded).

1.3 million tons departed the EU as undocumented exports. These shipments are susceptible to be illegal shipments, where they do commonly not adhere to the guidelines for differentiating used equipment from waste, such as the appropriate packaging of the items. Since the main economic driver behind these shipments is reuse and repair and not the dumping of e-waste; of this volume, an estimated 30% is e-waste. This finding matches extrapolated data from IMPEL (European Network for Implementation and Enforcement of Environmental Law) on export ban violations, indicating 0.25 million tons as a minimum and 0.7 million tons as a maximum of illegal e-waste shipments (IMPEL, 2008, 2011 & 2012).

Interestingly, some ten times that amount (4.65 million tons) is wrongfully mismanaged or illegally traded within Europe itself. The widespread scavenging of both products and components and the theft of valuable components such as circuit boards and precious metals from e-waste, means that there is a serious economic loss of materials and resources not directed to compliant e-waste processors in Europe (see Deliverable 4.3).

Importantly, case analysis of illegal activities outlines that vulnerabilities exist throughout the entire WEEE supply chain (e.g. collection, consolidation, brokering, transport, and treatment). Offences include: inappropriate treatment, violations of WEEE trade regulations, theft, lack of required licenses/permits, smuggling, and false load declarations.

To address vulnerabilities more coherent multi-stakeholder cooperation is essential. For this purpose a recommendation roadmap with short, medium, and long term recommendations has been developed. These recommendations aim to reduce illegal trade through specific actions for the WEEE treatment and management industry and to improve national and international cooperation to combat illegal WEEE trade.

The stakeholders that are mainly involved in this set of recommendations (see figure above) belong to the second stages of the WEEE chain such as traders, recyclers, reuse organisations, and additionally:

- Policymakers (local, regional, national and European) implementing rules to enhance communication and training.
- Enforcement agencies, inspectors of company sites and at ports, auditors of recycling and reuse standards.

It should be noted that Deliverables 6.1 and 6.2 deal in depth with recommendations for policy makers and enforcement agencies whilst Deliverable 6.4 involves the EEE manufacturing industry.

2 IMPROVE TREATMENT

This recommendation cluster is about improving the environmental performance of the overall recycling and pre-processing industry in Europe, particularly by reducing non regulated or improper treatment activities and reporting. It also outlines a few recommendations applicable beyond EU borders. Some participants in the CWIT conference consider improved treatment as a key measure since WEEE is a promising secondary source of metals. High tech, green and sustainable technologies for metal recovery from WEEE would provide an incentive for improved collection and treatment efficiencies. In addition, implementing this recommendation is fundamental to minimize risks to health and damage to environment (more details are provided in Annex B, final conference participant feedback summary).

The core of the problem is that illegal export is a relatively easy way to externalize and thus avoid the costs required to implement proper recycling. This is attractive to both large and small scale actors in Europe. The illegal export in turn, feeds the enlargement and relative power of the informal sector in developing countries leading to environmental degradation and harm to human health. Adequate enforcement programs and personnel in all EU countries is a necessity as are diligent prosecution and penalties that serve as a deterrent to the crime of illegal trade.

From a European perspective, quality in WEEE treatment does not materialize by itself due to lack of economic incentives, specific market conditions, unfair competition, insufficient quality control mechanisms and gaps in monitoring and subsequent oversight and enforcement. At the same time, many laws already steer treatment in Europe. A specific challenge is that a lot of these requirements do not positively discriminate the legitimate industry over non-regulated players.

2.1 Standards and enforcement

Well implemented and functioning treatment standards for WEEE recyclers and enhanced enforcement, especially on those being non-compliant or not audited frequently, on all actors along the treatment chain. This proposal is in line with Articles 8.5 ‘’Proper treatment’’ and 23 ‘’Inspection and monitoring’’ of the WEEE Directive.

Action: Implement (mandatory) WEEE standards

From a global perspective more and more treatment standards have arisen in the last years. Below is a short list of some of the best known WEEE standards.

- WEEELABEX: On 28 July 2008, the LIFE committee, an EU panel composed of representatives of the member states and of the European Commission, approved the WEEE Forum's "WEEELABEX" project proposal (LIFE07 ENV/B/000041). In the course of a four-year multi-stakeholder project, WEEELABEX lay down a set of European standards. They cover the collection, handling, storage, recycling, preparation for re-use and disposal of WEEE, and for the monitoring of processing companies through audits conducted by auditors trained by the WEEELABEX Office.[1]

- CENELEC: In order to fulfil Article 8.5 of the WEEE Directive, the European electrotechnical standardisation body, CENELEC, under the environmental standardisation Working Group "TC111X/WG6 treatment of WEEE standards" is currently preparing deliverables based on the industry standards (such as WEEELABEX) to support the mandate of the European Commission. In particular, these deliverables deal with the treatment of WEEE and its metal fractions, and the collection and logistic activities related to them.[2]

[1] See http://www.weeelabex.org
[2] http://www.cenelec.eu/aboutcenelec/whoweare/

- R2: Recognizing the need for a comprehensive certification program that captured the operational and environmental concerns of the industry, the US EPA convened a multi-stakeholder process to develop the "Responsible Recycling Practices for Use in Accredited Certifications Programs" (R2). The goal was to create a voluntary, market-based mechanism for ensuring best practices, which would also provide essential information/assurances to customers. R2 Solutions (R2S) is the non-profit organization established to house the R2 Practices. They conduct educational and outreach services and provide administrative support for the multi-stakeholder R2 Technical Advisory Committee (more information available at R2 website)[3].

- E-Stewards: The e-Stewards Standard for Responsible Recycling and Reuse of Electronic Equipment is owned by the Basel Action Network (BAN), a non-profit organization working globally to prevent the toxic trade and promote a toxics free future. The Standard is comprehensive, covering data security, worker safety, downstream due diligence etc. It is also wholly consistent with the definitions and trade rules of the illegal trafficking of hazardous waste, based on the United Nations' Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal. Certification to the standard is achieved via third party audits conducted by approved and accredited Certifying Bodies operating under International Accreditation Forum (IAF) rules. The standard is integrated with the ISO 14001 environmental management system and those Certified to e-Stewards thus get two Certifications at the same time (e-Stewards and ISO14001). [4]

- EPEAT: The Electronic Product Environmental Assessment Tool (EPEAT) [5] is a method to evaluate the environmental performance of computers, displays, imaging equipment and televisions based on their compliance with certain standards. "These standards are developed through voluntary, multi-stakeholder consensus processes. Although not being a standard for treatment and prevention is important: This standard focusing on product design, includes measures to improve the recyclability of products and reduce the use of disturbing or environmentally relevant substances, which should improve the treatment of these products when reaching end of life. To qualify for inclusion in EPEAT Registry, a standard must have been developed through a process that is balanced, open and transparent, allowing all interested stakeholders to provide input and review". According to the degree of compliance, EEE are labelled as EPEAT Bronze, Silver or Gold. The Green Electronics Council, the organization responsible for EPEAT, has signed an MOU (Memorandum of Understanding) with a group of technical and environmental assessment organizations. The Council evaluates computing equipment against 51 criteria - 23 obligatory and 28 optional ones — that measure a product's efficiency and sustainability attributes. Products are rated gold, silver, or bronze, depending on how many optional criteria they meet. In the United States, federal agencies are required to take into account the EPEAT label when purchasing computer systems.

Requiring all processors to conform to minimum standards is the first way to level the playing field for de-pollution and resource efficiency of economically less attractive materials, such as plastics, as well as critical raw materials. The implementation must be reinforced by specific policies, so that non-compliant recyclers cannot obtain a competitive edge over their compliant competitors. Practices supporting these recommendations can be seen in a number of member states, for instance standards are already mandatory for all WEEE operators officially reporting in the Netherlands, France, Ireland and Italy (details can be found in Annex A). The European Commission can further encourage the mandatory nature of the standards through an Implementing Act. And member states are in a position to encourage, through various measures, the implementation of the standards in recyclers' contracts with producer compliance schemes or individual producers.

[3] See http://www.r2expert.com/r2-certification/
[4] See http://e-stewards.org/
[5] See http://www.epeat.net/

It was stressed during the CWIT Final Conference that the measures above should be supported by strong communication and information campaigns and actual monitoring and enforcement. Simplified and clear instructions must be given to operators accepting WEEE in order to improve compliance. Access to information and easy communication channels between traders and competent authorities must be set in place.

The CWIT consortium recommends a conformity verification process of treatment standards by qualified and trained auditors that will support an adequate implementation of the standards.

Standards can be applicable to treatment facilities outside the European Union. This is mentioned again later in this document in section 7.

Case study. Conformity verification of standards for treatment: The WEEELABEX Organization.

Following the introduction of the WEEELABEX standards in April 2011, twenty-five WEEE compliance schemes joined together in Prague on 17 April 2013 to set up the WEEELABEX organization. The organization is an international non-profit legal entity, set up to train auditors in the WEEELABEX standards, as well as to promote the adoption of these standards by operators and member states as a means to improve WEEE management practices in Europe.

Three constituent bodies make up the WEEELABEX organization: the WEEELABEX General Assembly, composed by all member WEEELABEX systems, the WEEELABEX Government Council (WGC), which is the executive body, and the WEEELABEX Office, that functions as Secretariat and WEEELABEX notary. All WEEELABEX auditors use the same audit process documents, apply the same set of standards and report their findings to the WEEELABEX Office.

The WEEELABEX Office hosts and prepares specific training for auditors. Auditors meeting the profile conditions and passing the trainings are listed in a public website. Besides the management of the WEEELABEX trademark and the pool of WEEELABEX auditors, the WEEELABEX Office manages the conformity verification process by assessing applications from potential WEEELABEX treatment facilities and nominating listed facilities. Treatment facilities that have successfully undergone conformity verification are listed as well in a public website (more information available at WEEELABEX website[6]). Currently, more than 70 facilities have been listed in Europe since the WEEELABEX Organization was founded in April 2013.

The WEEELABEX case study has been included in this document as a European practice tailor made for compliance with European requirements. Similar practices exist such as e-Stewards and R2.

2.2 Improved reporting

Improve reporting on treatment (Article 16 of the WEEE Directive ''Registration, Information and Reporting''). Currently reporting done by individual treatment plants ends up in the annual reporting of Member States and includes only the quantities collected, treated inside or outside the Member State and the recycling and recovery performances on weight basis. Such reporting is usually done according to the 10 product categories (Annex 1 of WEEE Directive) and will shift to the 6 collection categories (Annex 3) in 2018. In many cases environmental agencies and national authorities link such reporting to general waste handling reporting done according to European Waste

Codes. But no specific requirements on reporting on the depollution results as the result of following the Annex VII (''Selective treatment for materials and components of WEEE'') exist in the WEEE Directive for elements/components/fractions. Since this touches one of the key objectives of the WEEE Directive, reporting on those elements is currently insufficient and non-transparent as mainly done using European Waste Codes and following the general waste management reporting requirements according to Waste Framework Directive. The codification issues resulting are discussed in depth in Deliverable 6.1.

Action: Improve reporting on treatment within and outside Europe

One missing key element in the implementation of the EU legal framework is reporting on Annex VII of the WEEE Directive regarding selective treatment. This cluster focuses on strengthening the reporting requirements for amounts of environmentally hazardous substances removed from WEEE per Member State, for instance as part of revising Article 16 of the WEEE Directive or the addition of further requirements on such reporting in Annex VII itself. Reporting of Annex VII depollution results should currently be done in the context of the Waste Framework Directive general reporting (per waste code). However, also due to the codification issues as discussed in Deliverable 6.1, there is no reporting on a national level and thus insufficient oversight and complete lack of benchmarking on treatment results. Since the de-pollution concerns are one of the primary objectives of the WEEE Directive, this crucial omission is recommended to be filled in new iterations of the WEEE Directive and/or in the national transpositions as an additional requirement.

It is recommended that enforcement of Annex VII, preceded by proper national reporting of treatment performance, should prevail over other reporting requirements such as achievement of mass balance recycling targets that make relatively less sense from an environmental perspective and which is causing unnecessary administrative burden without much environmental stimulus in practice for better treatment. Of course, one can argue that this causes another type of administrative burden and thus another negative discrimination of the legitimate recycling industry. This can be avoided by arranging the existing and upcoming reporting related to compliance with CENELEC standards as well as the reporting under the WFD and/or existing reporting practices (like RepTool) to national authorities in a more streamlined manner. This would function best when being accompanied by simultaneous restrictions like the discontinuation of licenses for non-compliant treatment operators, traders and recyclers also treating WEEE again accompanied by inspections and enforcement.

Case study. WF-RepTool, the WEEE Forum's tool to facilitate better reporting

WF-RepTool is a voluntary reporting tool developed by the WEEE Forum, to determine WEEE treatment results in a transparent, traceable manner and to achieve comparable results.[7]

It is a tool that allows to calculate recycling and recovery rates in accordance with what is required in the WEEELABEX standard, and record traceability of the WEEE treated until the end of waste status.

The focus lies on the determination of de-pollution results of WEEE and – as main target - on the determination of recycling and recovery results to be able to compare results achieved with targets rates given by the legal requirements.

WF-RepTool is built up on four 'pillars' of background lists (WF-RepLists).

- Input fractions
- Technologies used
- Output fractions
- WF-classification

[7] See WEEE Forum WF-RepTool. http://www.wf-reptool.org/index.php/home

The four background lists provide uniform names for the use of the tool and – as one of the key elements - the classification of the use of fractions (or its individual components) in final treatment processes applied.

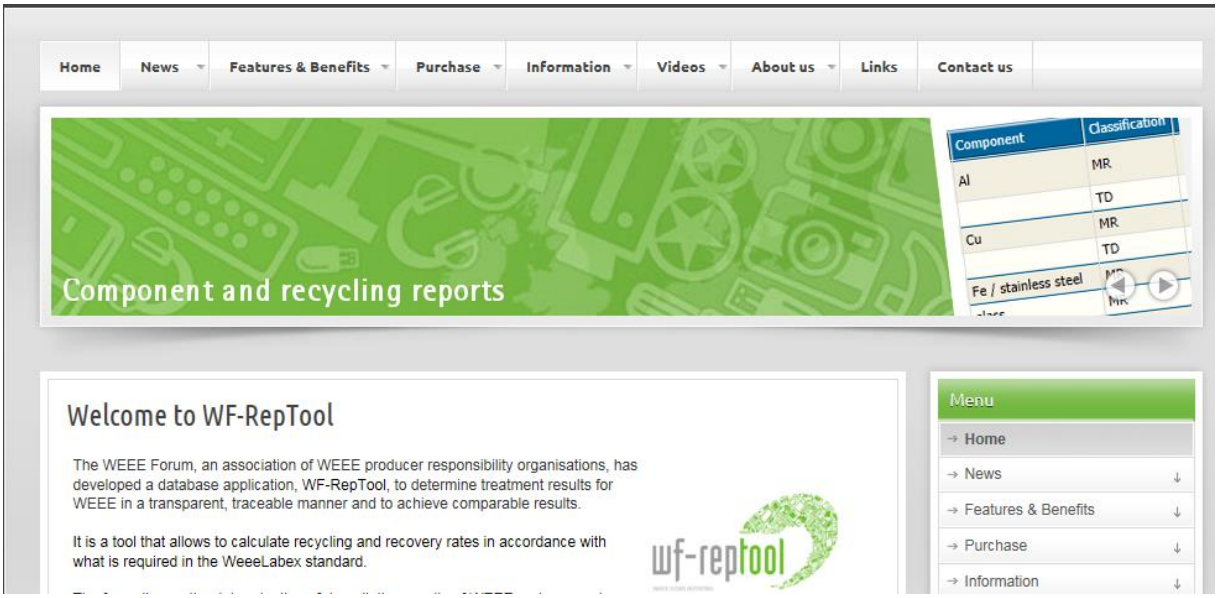

Figure 2. Caption of the WF-RepTool webpage (http://www.wf-reptool.org/index.php/home)

In addition to this, the tool allows treatment operators to record their treatment performance in a specific time period (annually, quarterly, treatment test performance etc.). Furthermore, a specific option in the tool is provided to submit "depollution reports" as discussed in previous paragraphs, i.e. reports that allow regular recording of depollution performance, preferably to be done also at national levels allowing benchmarking of proper WEEE treatment.

The use of this tool facilitates monitoring and supports inspection and enforcement of WEEE treatment activities.

A complementary action supporting this recommendation cluster is to make the Europe-wide harmonised nomenclature (background lists) underlying this reporting system mandatory at national or European level, or to implement supporting policies that will promote or encourage voluntary use of this tool within the WEEE industry.

2.3 Improve the economics of depollution

Currently proper depollution contributes substantially to net treatment cost (see Deliverable 4.3.) where the costs of non-compliance are estimated between 150 to 600 million € annually. Proper treatment therefore is a factor that requires other financial incentives in order to support quality of treatment. Policies with economic incentives supporting both proper depollution and reporting practices should be put in place.

Action: Improve the economics of depollution

Many studies mention the role of high costs of legal waste management as risk-producing. There is the cost of waste management per se. Recycling and incineration technologies are expensive and even the price for dumping has increased, because of stricter environmental regulations and licensing. There is the cost of compliance which is estimated to be in between 150 – 600 million € in Deliverable 4.3 for the avoided compliance costs of the diverted flows already. These costs increase in steps with regulatory burdens: traceability, labelling, automation and book-keeping procedures

have generated higher overhead costs for licit waste management companies. All such burdens give competitive advantages to illegal operators (Dorn, Daele & Bekenet al., 2007).

The aim of this recommendation is to make it economically attractive enough for pre-processors and other handlers of e-waste to report and treat WEEE as mandated by law, hence decreasing the pressure of factors promoting non regulated activities. At the same time, this recommendation proposes means to counter unfair competition that authorized facilities suffer in Europe.

If incentives for proper de-pollution targeted to e-waste handlers were stronger, there would be less economic incentives to avoid environmental costs by shipping e-waste to developing countries, non-regulated treatment, and/or misreported WEEE. Lowering the costs and simplifying procedures for authorizing WEEE treatment facilities, often long and expensive in many EU countries, will probably increase the number of regulated facilities. This recommendation involves evaluating and redesigning financial incentives for making correct WEEE treatment financially reasonable.

This recommendation also involves re-assigning current primary responsibilities or introducing new subsidies or tax exemptions for companies taking care of de-pollution (mainly in the pre-processing phase). However, in practice there is not much experience with such alternative financing. In addition, paying the right amount of the subsidies and granting justified tax exemptions would require development and implementation of new reporting standards and auditing schemes for monitoring amounts of e-waste the recyclers and other actors handle.

Figure 3. Batteries removed from WEEE.

Alternatively, reconfiguring financing arrangements, such as introducing lower overall collection fees accompanied by higher fees for actual treatment of WEEE containing hazardous substances and non-valuable fractions (and the most environmentally relevant ones like CRT glass, mercury and CFCs of Annex VII list), verifiably recovered might be a good idea, but difficult to implement. However, more and more countries are changing the financial system in this respect connected also to the 'all actors report' recommendation cluster (See Deliverable 6.4) for legitimate operators working according to CENELEC standards.

Policies supporting the search of viable and cost effective solutions for non-valuable fractions may improve the situation as well. For instance, research programmes evaluating possible solutions for the treatment of CRT glass or plastic fractions from WEEE are extremely helpful.

Specific tax reductions for companies that volunteer to implement WEEE treatment standards and report depollution should be considered. Similar policies are used by EU member states in order to promote the implementation of environmentally friendly technologies or ISO and EMAS standards in the industry sector. Reductions in environmental inspections or controls for facilities that have proven to implement WEEE standards and report on depollution are also good initiatives to support this recommendation.

Local de-pollution can be made more attractive by either subsidizing de-pollution activity through government grants and tax exemptions. The first option, the subsidies and/ or tax exemptions or more targeted use of visible fees to be used for de-pollution, would cost a great deal of money. Cost issues aside, the re-designing and implementation of the new economic incentives for de-pollution could take years.

And finally, specific enforcement campaigns targeted at non regulated facilities and particular non-compliance with the WEEE Annex VII removal requirements of environmentally relevant substances would support and complement the recommendations suggested above. It should be noted that sufficient enforcement, prosecuting and legal tools must be in place in order to carry out this type of campaign which is not the case in all EU countries.

3 IMPROVE REUSE

This recommendation is about education and professionalising of the actors in the reuse, refurbishing sector including charity organisations related to shipment of used EEE outside Europe. It is also about providing guidelines, such as guidelines on functionality tests, supporting a proper implementation of e-waste policies in Europe. Participants in the CWIT final conference have indicated the importance of reuse of used EEE (UEEE) as an upstream solution to prolong the durability of electronic goods and thereby reduce the tsunami of e-waste and render the problem more manageable. Since reuse is a main driver in the global south countries (non-OECD) for over 15 years, it is necessary to regulate but allow reuse in countries with low labour costs. This will promote micro economies in less developed countries and supports bridging the digital divide. Moreover, reuse is also an actual topic in Europe necessitating global standards to make it a viable option (see Annex B for details on CWIT Final conference participant feedback).

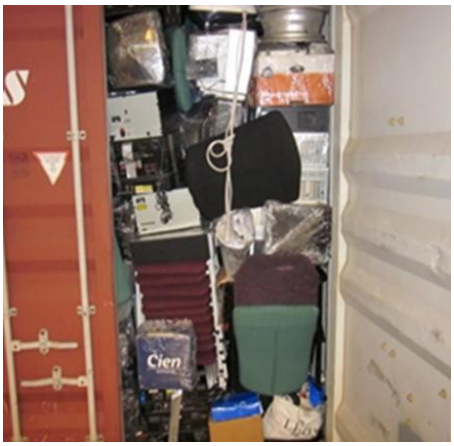

Figure 4. Shipment of mixed U/WEEE and other goods.

A central issue with the illegal trade of WEEE is the diversity in shipments of WEEE, with UEEE) of various shapes, forms and age being exported. The diversity in the reuse industry ranging from individuals and small traders to charity organisations and large specialised refurbishers on the one hand, and the difficulties to clearly ascertain in every case whether the shipment of UEEE is legal or already illegal makes it difficult to ensure sufficient quality in outgoing shipments. In addition to this, there is a lack of clarity and awareness on how to implement various guidelines and to act responsibly. Ultimately there is an urgent need to develop measures on how to discriminate between, on the one hand, shipments for proper reuse contributing to bridging the digital divide, and those of mixed quality with too many appliances of low or no remaining useful life, on the other. From the analysis of the economic drivers in Deliverable 4.3, it is evident that there is no direct driver identified for dumping waste as such towards developing countries. However, there is a more indirect driver due to the avoidance of sorting, testing and packaging costs at the sending end, leading to these frequently observed mixed shipments with too much WEEE included in shipments of used goods. From the analysis in D4.3, the main economic driver behind exports is the reuse value, with an order of magnitude of thousands of € per load. Secondly, 'supported' by not sorting, testing and packaging the items (with an order of magnitude of hundreds or € per ton) and thirdly: For the waste part the avoided disposal costs contributing to the total economic difference driving mixed exports contributes to less than a few hundred €/ton).

The following actions are suggested to avoid or at least reduce low quality shipments:

- Use harmonised definitions for reuse, preparation for reuse and refurbishment;
- Develop and harmonise reuse standards and guidelines;
- Provide training and capacity building for the refurbishment/reuse industry; and

Action: Harmonize definitions for reuse, preparation for reuse and refurbishment

The term "re-use" and its associated terminology has varying definitions in international legislations, norms and preparing for re-use practices, all embracing different contexts and not following a global standard for communication. The WEEE Directive, or the Waste Framework Directive respectively, define terms like reuse and preparation for reuse in the European context. Reuse, however, necessarily also has an international and public meaning due to the export and international trade in UEEE. This situation requires a globally harmonized understanding of key terms.

Currently depending on the destination of reuse equipment, some material may be considered waste and others not (Sander and Schilling, 2010). A reuse terminology based on a holistic approach cast into a "dictionary" of key terms, their definitions and underlying concepts is therefore indispensable for establishing a global standard for communication and a common understanding. However, definitions of waste, non-waste, recycling, re-use etc. have been established and are being established within legal frameworks in the Basel Convention, EU and elsewhere. These unique legal definitions are binding on the countries. An alternative approach to this recommendation are initiatives to promote training on the current definitions rather than creating or redefining existing terms. This action is also discussed in Deliverable 6.1 (Recommendations related to the European legal framework).

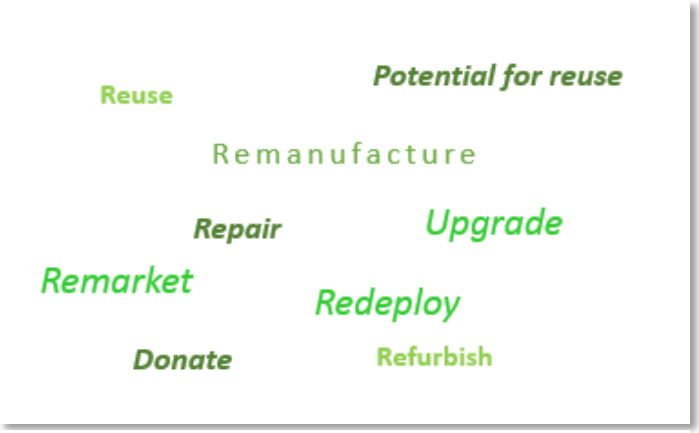

Figure 5. Terms in the glossary of the SteP initiative white paper " One Global Understanding of Re-Use" (2009)

Action: Harmonize preparation for reuse standards and guidelines

Safety, quality and reliability are core concerns related to equipment for reuse. It is therefore plausible to define requirements and procedures to ensure equipment for reuse is safe, reliable and of sufficient quality. Harmonized standards and guidelines for preparation for reuse based on best practices for the EU, therefore make sense, even better on international level, as well as a reliable certificate to show consumers and competent authorities that reused equipment has undergone procedures ensuring they are safe and of good quality.

Additionally, it should be noted that in some EU countries the status and requirements applicable to activities of preparation for reuse and reuse are yet to be defined in legal texts. Only a few countries like Belgium and Ireland have public registers listing companies performing such type of activities. So there is no common understanding of preparation for reuse and reuse practices not even within the EU, and no certificate that would make reuse EEE much more attractive for consumers, and which would help competent authorities to differentiate reused EEE from waste EEE, e.g. at the point of export. Putting harmonised reuse standards and guidelines including a reliable certification scheme in place therefore would foster the reuse market within the EU, and would be a major contribution on international level to fight the illegal shipment of WEEE under the sham label of equipment for reuse.

The CWIT Consortium identified some standards on preparation for reuse:

- Guidance materials are also being developed within the framework of the European Commissions' Mandate 518 given to CENELEC. The TC111X-WG7 is working on an EN standard for reuse. It is expected that this standard, which will be published under the EN 50625 series, will be ready by the end of 2015 (EC, 2013).

- In 2012, OVAM, Flanders' public waste agency, published the Code of Good Practice for the re-use of WEEE. The document includes functionality testing criteria, and it will likely be transposed in Flemish legislation (OVAM, 2012)[8]. Another re-use guide initiative can be found published on the website of the Austrian environmental agency[9].

- Partnership on Action for Computing Equipment (PACE) Guideline on the environmentally sound testing, refurbishment and repair of used computing equipment. The Partnership for Action on Computing Equipment (PACE) was launched at the ninth meeting of the Conference of the Parties to the Basel Convention (COP IX), which took place in Indonesia in June 2008. PACE Project Group 1.1 was established in May 2009 with the purpose to set out a list of environmentally sound management criteria that are relevant to the refurbishment or repair of used computing equipment. Guidance is also included on labelling/documentation, packaging and storage and handling of refurbished and repaired equipment as well as marketing, donation and redeployment of refurbished and repaired computing equipment and components. The guideline was approved by the PACE Working Group in 2011, and revised in 2013 [10](.

- Mobile Phone Partnership Initiative Guideline on the Refurbishment of Used Mobile Phones. The Guideline which was approved under the Mobile Phone Partnership Initiative (MPPI, 2010) in 2009 provides guidance applicable to refurbishment facilities. It covers product handling and refurbishment, management of components and materials removed from used mobile phones, how to deal with process residuals, packaging and transport of used mobile phone components and residuals destined for materials recovery and recycling. It also covers administrative measures such as record keeping, environmentally sound management, regulatory authorizations, personnel training and inspections and monitoring. It also provides guidance for the remarketing of refurbished mobile phones and covers compliance with applicable operational standards, labelling of refurbished mobile phones and compliance with import requirements.

- Draft technical guidelines on transboundary movements of electronic and electrical waste and used electrical and electronic equipment, in particular regarding the distinction between waste and non-waste under the Basel Convention. These are still under draft status.

> *''WEEE illegal trade is not a new problem, but it is a growing problem'''*
> *CWIT Final Conference, Lyon, June 2015*

This recommendation proposes to make the CENELEC standard, or equivalent standards, legally binding in all EU member states, hence, harmonising and establishing preparation for re-use practices in Europe. A conformity verification process that will ensure a neutral assessment of compliance against the standard should complement this recommendation.

Standards may solve the lack of supporting information for the implementation of the legislation in force. For instance, formalising functionality testing for reusability of UEEE with preparing for reuse

[8] See http://www.ovam.be/

[9] See http://www.bmlfuw.gv.at/greentec/abfall-ressourcen/abfallvermeidung/RepaNet.html.

[10] See http://archive.basel.int/industry/compartnership/

organizations might enhance the reuse of WEEE in accordance with the WEEE Directive, boosting job creation in reuse and refurbishment organisations whilst discouraging both informal and illegal activities (CWIT Deliverable D5.2, Volume of WEEE illegally traded). The absence of a functionality testing framework within the current legislation can restrict the movement of reuse equipment for reuse organisations and cause confusion for competent authorities when distinguishing between wastes and non-wastes.

Case study. The PAS 141

PAS 141 is the specification method – developed by the British Standards Institution and introduced in the UK in 2011 – which aims to ease the identification of appliances truly fitted for reuse by assuring that they are safe after specific testing. The PAS 141:2011, as it is called, is a process management specification for the re-use of UEEE. It stipulates that anyone involved in the reuse or refurbishment of used EEE who pursues certification must follow standardised treatment procedures, as indicated in the specification, for testing and inspecting equipment, in order to assure the transparency of reuse processes including tracking equipment during the operations and recording the functionality tests carried out. This is a useful tool designed to guarantee the integrity of the reusable devices to counteract the illegal exports of WEEE under sham reuse guise. Such certified re-useable devices are safe and do not adversely affect their brands' reputation for quality. Accredited organisations involved in the collection process can be found all over Europe. In addition to this, WRAP[11] developed a set of protocols based on industry experience that highlight the tests and procedures that should be carried out as a minimum to comply with PAS 141. They form a baseline for electrical product assessment and repair for re-use and can be used as a guideline to product assessment and testing.

Other recommendations: Set re-use targets.

Another item for consideration in this recommendation cluster is the setting up of targets for re-use. According to article 11 of the WEEE Directive, the European Parliament and the Council shall, by 14 August 2016 (…) examine the possibility of setting separate targets for WEEE to be prepared for re-use (…). A report on Art. 11 of the WEEE Directive (''Recovery targets'') mandated by the Commission was recently issued and concludes that an implementation of separate re-use/preparation for re-use targets faces several difficulties but re-use/preparation for re-use generally should be promoted due to its overall benefits (BiPRO, BIO by Deloitte & UNU,2015).

Preparation for reuse activities are considered in some EU countries such as Spain, a sector with job creation opportunities, from a social and economic perspective; according to RREUSE Organization, 1,000 tonnes of WEEE prepared for re-use would create 35 jobs compared to 7 jobs if it was dismantled. In line with the potential and job creation of preparation for re-use activities stated above, some EU countries, such as Spain, set a preparation for re-use target in the transposition of the WEEE Directive. This measure may increase the values reported as prepared for re-use within Europe in the coming years. It remains to be seen if these policies supporting re-use will affect the exports of used EEE and WEEE in Europe. This action is also explained in Deliverable 6.1 (Recommendations related to the European legal framework).

Action: Provide training and enhance capacity building for the refurbishment/reuse industry

[11] http://www.wrap.org.uk/content/re-use-protocols-electrical-products

Standards and guidelines require training and capacity building of refurbishers and the reuse industry in general. The institutions and organizations responsible for apprenticeships and advanced training and of professionals in the EU member states could offer advanced trainings in reuse and refurbishment practices and establish auditing and certification centres, or have them established. The auditing and certification labels and their background should also be communicated to competent authorities such as the customs and police to help them discerning EEE for reuse from waste. It should be noted that a controlled conformity verification system is essential to guarantee good practices and a reliable implementation of the standards.

4 IMPROVE COLLECTION

In many EU countries thefts at collection points or diversion of WEEE to non-reported flows occur very often. The high frequency of these practices may indicate a high rate of profitability vs risk for informal actors, and complex enforcement and prosecution. A survey conducted among recyclers performed by the CWIT project showed that an average of 29% of fridges received at treatment plants lack compressors. Respondents also reported that the percentage of cannibalised IT equipment that reaches treatment plants, ranges between 5 and 90% with an average value of 36%.

Figure 6. Curb side fridge (missing compressor).

This recommendation is associated mainly with the enforcement & control theme because of its focus on crime prevention. It is also linked to the education and awareness theme as long as it concerns implementation of new security solutions that involve training of for example security personnel and e-waste handlers.

The occurrence of thefts is high where there is uncontrolled access in collection sites. Actors collecting and consolidating WEEE are often exposed to offers of bulk purchase by different economic operators (CWIT Deliverable D4.1, Typology of WEEE operators).

Action: Increase the number of collection points

The network of civic amenities and retailer's facilities is considered the main network of collection points. Initiatives to expand the collection network have been implemented in some EU countries, mainly by compliance schemes, producers and competent authorities. The management industry could participate in this action if competent authorities allow recycling and logistic facilities to become collection points, by expanding the scope of their activity permits. This practice is already into force in many EU countries and could be expanded to the rest of the European territory. In these cases, it is recommended that records on the origin and amounts received are kept and made available for competent authorities. Additional controls of the volumes received may be performed

Figure 7. Curb side TV cannibalised.

by PROs if agreed between interested parties. More actions to improve collection are compiled under CWIT Deliverable 6.4.

Action: Introduce Ban on cash transactions

Money is a relevant driver for the illegal trade of WEEE. Therefore it is suggested to apply measures that will reduce the profitability of illegal trade and the viability of cash transfers related to WEEE illegal trade. The ban on cash and bank card transactions in metals implemented by France is a good example of this type of measures.

The French legislative text requires any professional who purchases metals from a private individual or another professional to do so by cheque or by wire transfer to an account in the seller's name. Cash transactions are no longer permitted. The purpose of this is to improve the traceability of transactions involving metals, particularly those which transit through WEEE recovery organizations, to identify such recovery organizations, and to ultimately tax these transactions.
The EU should consider putting in place a ban on cash transactions, to avoid unfair competition arising from the fact that unregistered scrap dealers cross intra-EU borders to circumvent the ban.

During the CWIT Final Conference, it was mentioned that this measure may have side effects such as an increase of traded WEEE:

- in bordering areas with countries allowing cash transactions, and
- an increasing flow of WEEE to unauthorised facilities that ignore the ban and pay in cash to unidentified sellers.

For instance, trade of WEEE to Spain and Belgium has been identified in France, which decreased the activity of French regulated facilities in these areas. It is, therefore, was suggested that the Ban on cash transactions is implemented together with a policy of mandatory identification of sellers and enforcement campaigns to tackle illegal facilities. In parallel, informative campaigns on the risks of accepting WEEE coming from uncertain origins should be put in place.

WEEE industry associations in cooperation with competent authorities may play a relevant role in the development of inspection programmes and implementation of communication campaigns. This recommendation is also described in Deliverable 6.1.

5 IMPROVE NATIONAL COOPERATION (NATIONAL WEEE NETWORKS)

This recommendation cluster concerns enhancing cooperation and communication between organizations involved in the WEEE trade and countering illegal trade in WEEE. The first group include all types of stakeholders identified in the WEEE value chain, such as consumers, traders, the WEEE industry, NGOs, EEE producers and compliance schemes, logistic companies etc. The competent authorities involved in countering illegal trade include police authorities, tax and customs authorities, special waste shipment units, state and regional environmental authorities and prosecution offices. Poor cooperation results in a lack of training and information for competent authorities, and a difficulty for police to identify the environmental crimes and the type of evidence required for prosecution.

Action: Establish a National Environmental Security Task Force (NEST)

The action that is recommended to strengthen cooperation and communication, is for countries to form National Environmental Security Task Forces (NESTs) to ensure a coordinated multi-agency response to tackle the illegal trade in WEEE. The NEST brings together different national authorities to tackle environmental crimes. The NEST concept is developed to tackle all environmental crimes, but based on priorities, sub-task forces can be created within the NEST with a focus on a specific

crime type, such as the illegal trade in waste and/or WEEE. This recommendation is further developed in 6.2 (Recommendations for law enforcement organisations).

The WEEE industry may play a relevant role in this Task Force because they know the intricacies of the WEEE management industry, WEEE flows, drivers and even non regulated actors, at local and national level. Furthermore, it is in their interest to have a level playing field in the WEEE sector and increase the pressure over the non-regulated sector (unfair competitors).

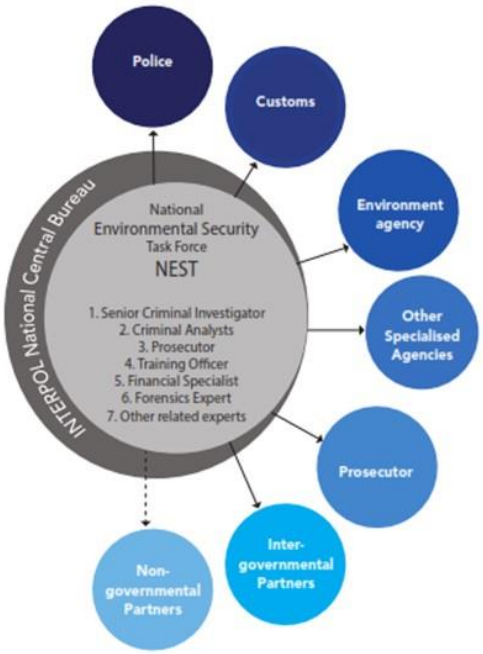

Figure 8. NEST diagram.

While some environmental crime issues can be addressed by a single agency, in most cases an effective response requires the knowledge and expertise of multiple agencies working together. By creating a team of experts, each with specialised skills, a NEST could ensure that all criminal activities related to the illegal trade in WEEE are addressed. The NESTs centralise all the efforts against environmental crime, ensuring a coordinated response that avoids duplication of efforts, ensures the efficient use of resources, and facilitates intelligence, capacity, and capability exchange among agencies.

Being part of the NEST involves communication, information exchange, and compliance and enforcement actions.

Within the NEST, it is recommended the participation of police and compliance authorities, customs, environmental compliance enforcement agencies, prosecution offices and international cross border agencies. In addition, the NEST can connect with other organizations to discuss different topics and exchange knowledge, such as WEEE compliance schemes and industry networks amongst others. In some cases, it may be appropriate to invite specific participants for individual actions and operations with the task force being maintained by a care group.

The NEST is intended to frequently or even on an on-going basis assist in tackling WEEE problems. The structure for cooperation differs, it can range from authorities to cooperate on a case-by-case basis, to authorities merging into one organization. The most common NEST structure is for different authorities brought together in the task force. To ensure a successful NEST, secure, regular and real-time communication is important by for example: secure e-mail services, real-time information exchange on a case by case basis, teleconferences and face-to-face meetings.

All WEEE stakeholders are recommended to play a role in the implementation of this recommendation. Public-Private Partnerships (PPPs) are recommended. Private partners are advised to have an advisory role, as they do not have access to restricted case information. The exchange of information from local and national monitoring and benchmarking on collection rates would provide useful information to the law enforcement sector that will allow them to identify irregular activities in the WEEE value chain. Similar information could be shared in other parts of the WEEE supply chain.

Action: Enhance multi-stakeholder networks

WP4 proved that the WEEE value chain is a complex and extensive network of different types of actors covering multiple activities and affected by different levels of enforcement and legislation.

Therefore the CWIT project recommends to involve different types of stakeholders in programmes aimed at tackling WEEE illegal trade. This action is also referred to in Deliverable 6.1 (Recommendations related to the European legal framework).

> *''Every country has to involve all stakeholders to be efficient'''*
> *CWIT Final Conference, Lyon, June 2015*

An example of this approach was presented during the CWIT final Conference by a representative of the French ministry of sustainable development. The French government implemented during the past years a number of legislative texts affecting all types of stakeholders involved in the trade of WEEE. The commitment of the French authorities materialised in different strategic programs. Policies to reinforce the current regulations upstream (on collection) involving different types of stakeholders such as compliance schemes and scrap dealers were put in place. The main goal of such policies is to collect more in legal networks. The obligation to develop new channels of collection (especially with scrap metal dealers which need to be professionalised) was addressed as well.

Other policies affecting downstream, aiming at putting more pressure on illegal networks were also approved such as:

- Ban on cash payment for metal waste (see also Deliverable 6.1);
- Regulatory requirement for treatment operators (including sorting) to set up a contract with PROs, which will also contribute to professionalization of treatment operators.

Enforcement activities were also included in the plan of actions with and extensive inspection campaign on WEEE sites in order to identify illegal practices. Participation and input from the regulated WEEE industry in the preparation and implementation of such measures is recommended under this action.

6 PROVIDE GUIDELINES TO CAPACITY DEVELOPMENT FOR LAW ENFORCEMENT AGENCIES

This strategy is fully described under Deliverable 6.2 and proposes a range of measures for enhancing the capacity of law enforcement agencies (e.g., police, customs, environmental organisations, etc.) to counter WEEE-related crime.

The CWIT research outcomes have shown that a lack of knowledge and expertise is a major impediment in the detection of WEEE violations and illegal shipments. This is restated in the impact assessment for the recent revision of the WSR by the European Commission, which puts forth a lack of training for inspectors as a serious setback in enforcement activities for many member states (Geeraerts, Illes & Schweizer, 2015). Insufficient guidance and training often prevents officers from proving the illegal nature of a shipment.

Some stakeholders in the CWIT midterm workshop recommended that personnel from enforcement bodies, such as environmental inspectors and agents from relevant organisations should be specifically trained in methods that experts use to identify illegal trade and treatment of WEEE. They also considered it beneficial for customs staff to have specialised training to help them distinguish WEEE from UEEE (CWIT Deliverable 2.2, Report on WEEE components and recycling). A couple of respondents for the CWIT questionnaires noted that additional training for prosecutors on environmental law issues could be useful, whereas specific training on WEEE issues would be better suited for environmental inspectors and police (CWIT Deliverable 5.4, Gap analysis).

The importance of adopting robust training schemes in the context of the EWSR (European Waste Shipment Regulation - EU Regulation 259/93) has also been highlighted by some member states (EUROSAI, 2013). IMPEL recommends putting in place an enforcement strategy and a multi-year programme for the enforcement of TFS (Transfrontier Shipment) regulations (EU Regulation 259/93), where knowledge and training programmes run by environmental agencies, customs and police form important components (IMPEL-TFS, 2004).

WEEE treatment facilities and experts from the WEEE industry may provide training to environmental inspectors and other law enforcement agencies. Basic information on the appropriate treatment process, and drivers behind illegal trade are part of the topics discussed in the trainings in countries where this initiative is already put in practice.

Action: Establish public-private partnership scheme

Setting up a partnership programme between law enforcement authorities and the WEEE industry would facilitate knowledge exchange and expertise. Government agencies should assist industry actors to gain a greater understanding of WEEE legislation and compliance therewith. In return, industry experts should provide technical knowledge to government officers on critical issues like distinguishing WEEE from used EEE and identifying the hazardous nature of a shipment.

This proposal could be emphasized using the idea of Smart enforcement of a voluntary scheme of the WEEE industry with the law enforcement agencies. If best practices are adopted, the cost of enforcement could be significantly reduced as well as the burden of administrative requirements (taking into account that over-detailed procedures and regulations should be avoided).

However the main problem to implement this proposal is the lack of resources and the high costs of inspections and enforcement actions. Being a low priority crime, the high cost of inspections and enforcement measures needs to be reduced, not in detriment of compliance but encouraging best practices that have been proven to be more efficient in terms of applied procedures and processes as well as more effective in terms of results. Considering these circumstances and the requirement of feasibility, one proposal that could be interesting is the preparation of a document on the best practices that should inform a voluntary scheme on smart enforcement to be agreed by the industry and law enforcement agencies.

Case study. The INTERPOL Pollution Crime Working Group

The INTERPOL Pollution Crime Working Group initiates and leads a number of projects to combat the transport, trade and disposal of wastes and hazardous substances in contravention of national and international laws. Pollution crime has a clear and direct human impact due to the hazardous nature of the substances in question.

The trans-boundary movement of waste and hazardous substances generally occurs from more developed countries to less developed countries, therefore calling for an international strategy. The INTERPOL Pollution Crime Working Group brings together specialized experts and criminal investigators from around the world to work on project-based activities on a global level.

One of the current projects of this working group is the Electronic Waste Sub-group, which has been established to identify the illegal networks responsible for shipping thousands of tons of electronic waste from the industrial to the developing world. With the establishment of Project Eden, members of the former Global E-waste Crime Group will provide operational support and act in an advisory role to this project. Members of the CWIT consortium and the CWIT High Level Advisory Board (HLAB) have been invited to participate in this group as well, which will ensure the continuity of the collaborative bonds created during the CWIT project.

7 IMPROVEMENTS BEYOND THE EU BORDERS

Disclaimer

During the many discussions under the CWIT project framework, multiple clusters also addressing improvements in developing countries were frequently discussed. Although originally out of scope, it was agreed to mention this issue in Deliverable 6.3. However, these clusters strictly taken, fall out of the scope of the CWIT project because the recommendations involve and are primarily applicable to non EU actors. However, to make some of the recommendations work also on a more global scale, cooperation and improvement is also deemed necessary in some of the receiving countries. In essence, the e-waste trade problems are not only affecting Europe, but have an obvious international dimension as well. Hence, some of the following recommendations are rather controversial and part of a fierce ongoing international debate. The analysis here discusses the pros and cons and different points of view of the stakeholders involved in the dialogue that CWIT promoted as well as drawing possible ways forward without drawing final conclusions and recommendations.

7.1 Improve treatment in developing countries for domestic e-waste.

In most e-waste destination countries, recycling is dominated by the informal sector that uses primitive, polluting manual processes with adverse effects on the environment, public health and resource efficiency. Due to the lower (labour) costs, weak enforcement or legal infrastructure to internalize costs through regulation requiring best practices, recycling in these countries becomes cheaper. This creates incentives for illegal and unsustainable exports of WEEE leakages. At the same time, the illegal exports fed by a steady supply of large volumes of WEEE can sustain an environment for informal sectors to thrive even though highly polluting and inefficient. Therefore, efforts should be made towards improved treatment infrastructure and solutions in developing countries, and heightened enforcement of waste trade rules. Simultaneously the informal sector should be gradually converted to a formal sector, which is less harmful to human health and the environment. Strategies should include greater implementation of the Basel Convention, perpetuation of international voluntary standards by attracting enterprise customers, and enforcing environmental laws on all operators. Where processing of critical fractions is not possible locally, the net return flow of critical fractions should be directed to more efficient recovery operations, for example in developed countries that require capital intensive recycling technologies. Improvement in the legal and technical infrastructure in developing countries will eventually internalize the currently externalized costs of WEEE management thereby reducing the pressure for unscrupulous exports, increasing the EU's resource efficiency of material recycling, and minimizing environmental impacts.

Observing rather substantial growth rates for own domestic consumption of electronics in developing countries, there are different approaches and roadmaps to establish recycling infrastructure there as well. Deliverable 4.3 provides good examples showing that the informal sector dominates WEEE treatment in destination countries, and highlights the complexity and enormous magnitude of this market in Asia and Africa. Therefore, it should be noted that this recommendation should be considered an initiative for shaping the thinking process now to enable long term, gradual implementation later.

The setting up and implementation of standards for transportation, storage and treatment including reliable verification schemes is a recommendation that supports this strategy.
Such standards and a reliable verification scheme would level the playing field for all WEEE operators. The requirements should be established stepwise taking into account that in the initial phase an incomplete standard is better than no standard at all. With increasing experience, the requirements can be tightened over time. The standard development can be started in each country taking into account the available end-of-life infrastructure, access to technology, appropriate disposal sites, etc.

This recommendation is in line with the needs of the EU legal framework. In accordance with Article 10(1) of Directive 2012/19/EU on WEEE, the treatment operation of WEEE may also be undertaken outside the Union provided that the shipment of WEEE is in compliance with Regulation (EC) No 1013/2006 and Regulation (EC) No 1418/2007 on shipments of wastes. The requirements laid down in Article 10(2) of the Directive requires that WEEE exported out of the Union shall only count towards the fulfilment of obligations and targets set out in Article 11 of that Directive if, in compliance with Regulations (EC) No 1013/2006 and (EC) No 1418/2007, the exporter can prove that the treatment took place in conditions that are equivalent to the requirements of that Directive.

Proper treatment of all separately collected WEEE is indispensable in order to achieve the levels of WEEE recycling and recovery set out in Annex V to the Directive, to protect the environment and human health by avoiding the dispersion of pollutants in recycled material or the waste stream and in order to preserve raw materials. Proper treatment in accordance with Article 8(2) of Directive 2012/19/EU shall, as a minimum, include the removal of all fluids and a selective treatment in accordance with Annex VII to the Directive. Furthermore, in line with Article 8(3) of Directive 2012/19/EU, any establishment or undertaking carrying out treatment operations shall treat WEEE in compliance with the technical requirements set out in Annex VIII to Directive 2012/19/EU.

WEEE treatment standards can be used by exporters to demonstrate that treatment of WEEE outside the Union takes place in conditions that are equivalent to the requirements of Directive 2012/19/EU. In 2013 the European Commission published the report Equivalent conditions for WEEE recycling operations taking place outside the European Union (BIO Intelligence Service, 2013). This document outlines the similarities and differences of existing WEEE treatment standards.

To achieve equivalence, it is crucial to include the disposal of critical and hazardous fractions. Appropriate disposal options are often lacking outside the EU, in particular in developing countries. The proper treatment and disposal of fractions like plastics with brominated flame retardants, CRT glass, mercury containing components and components containing asbestos or polychlorinated biphenyls thus may be impossible. Sanitary landfills appropriate for disposal of hazardous materials and safe incineration facilities may not be available in the country. As in the EU, these fractions can be treated and disposed of properly, equivalent treatment should include that such components and materials are ending up at facilities able to provide for proper treatment and disposal in cases where this is impossible under equivalent conditions outside the EU. However, usually this means preferred return of these shipments to OECD countries, whereas it appears in practice very difficult to arrange the paperwork to realise such ‘net toxic return shipments’ for various reasons in practice.

The efficiency and usefulness of the standards’ implementation in treatment facilities outside the EU is directly connected to a reliable conformity verification process. According to an expert participating in the CWIT final conference “we should consider promoting existing internationally legally compliant certification schemes in developing countries, systems whereby recyclers in third countries are certified to undertake recycling to certain standards. This idea has been subject to discussion in the context of the report to DG Environment with respect to non-EU but OECD countries, or with respect to non-hazardous waste (e.g. green listed waste), and is widely shared in the processing industry. This recommendation would involve finding drivers and perhaps subsidies to

cover the cost of certification for recyclers in developing countries, the creation of certification rules and scheme, auditing by certified audit outfits. Export to non-certified plants would be banned."

During the CWIT final conference, difficulties for enforcers to assess the veracity of the transfer documents in inspections were mentioned. In particular, the lack of a public list with existing non-EU authorised facilities was mentioned. A public list of certified sites will help enforcers to better check that the facility of destination actually exists and has been evaluated.

Case study. The Best-of-2-Worlds Philosophy

In this section, the concept from the "the Best-of-2-Worlds philosophy (Bo2W)" is provided as an example of a potential technical solution for e-waste recycling. The Bo2W approach originated at the StEP Initiative (Solving the E-waste Problem) and the United Nations University, which proposed an innovative approach for e-waste treatment in developing countries. It has carried out pilot projects in China and India, and the concept has been further carried in several African countries by other organizations.

When the Bo2W concept is applied in developing countries specifically, most pre-processing steps, in particular those benefitting from manual labour like manual dismantling can be retained locally. The generally lower labour costs in developing countries compared to the EU and other industrialized countries allows a deeper manual dismantling creating purer fractions of higher value. When the critical output fractions such as printed wiring boards, brominated plastics, mercury components and batteries are forwarded to global state-of-the-art facilities, then in theory overall detoxification and recovery of valuable materials is optimal. Sharing the existing end-processing infrastructures globally among dismantling facilities in developing countries is attractive in terms of economy of scale and avoiding high investment.

This approach can create positive revenues with lower environmental impacts. From a social point of view, such configuration can improve the treatment standard in developing countries to prevent high environmental impacts. Meanwhile, the Bo2W philosophy adopts a labour-intensive approach under environment health and safety standards, which preserves abundant jobs for the informal sectors with improved working conditions.

The pilot projects of Bo2W demonstrated that constructing a large-scale Bo2W recycling infrastructure can be successful when necessary framework conditions are in place, such as sufficient collection, fair access to waste material, legal clearance and financing. Implementing the Bo2W philosophy, starting from a small scale towards profitable fractions is more feasible than initiating ambitious plans with comprehensive solutions for all e-waste categories, specifically in case there is no considerable government or financing support. Trust among the waste providers, dismantlers and end-processors can be established when there is stable flow of materials and payment. Informal sectors shall be motivated through paying their collection and disassembly work rather than being excluded or ignored. In the long run, the solution to non-profitable hazardous parts and equipment still has to be addressed. This shall be enforced by 'systemic design' on national levels and local legislators ensuring pre-processors are behaving responsibly with hazardous fractions.

The Bo2W concept is an alternative for conventional approaches adopted in e-waste management. It is more pragmatic and economic compared to the construction of a comprehensive recycling chain with all necessary pre-processing and end-processing facilities available locally, the more as e.g. smelters for end-processing are multi-billion Euro investments and require highly qualified staff. The net flow of environmentally critical materials to be treated in global state-of-the-art facilities is an improvement to the current dumping of e-waste, which can overcome substandard processing in developing countries. It can be applied economically for e-waste categories with high material value (e.g. IT equipment and PWBs). For equipment containing substantial hazardous substances, it demands the assistance from legislations and financing to cover the costs from the service of

detoxification. It is a solution-based approach that can serve as a pragmatic and environmentally responsible transition before establishment of end-processing facilities in developing countries is made feasible.

With so far a rather single minded focus on prevention of illegal exports, the very much desired development of recycling solutions in developing countries has been under-exposed. Due to rapidly growing own domestic consumption of EEE and UEEE, there is a necessity to re-orientate towards strategies that ensure net-flows of the most environmentally relevant WEEE materials and components to the processing technologies that provide the highest recovery efficiencies and best toxic control from a global point of view.

Input from the CWIT consultation process
It seems that The Best of 2 Worlds concept is generally accepted when indeed restricted to domestic e-waste and when labour conditions are secured as the original publication (Wang et al., 2012) stipulates. It is controversial idea in case these original restrictions are not taken into account and one that is not shared by most stakeholders as there is clear risks that the total package in the concept is reduced to a form that only focuses on cherry picking of the valuable elements in e-waste. Some organisations believe that this approach takes advantage of cheap labour and can result in weak protections unless these are offset by some mechanisms to ensure such workers protection. However when these are not endemic within the laws of the country we are reliant then on the good will of an employer or distant and out of touch certifying body. Therefore, this scenario is considered precarious in day-to-day practice.

The supposition that collection and routine manual disassembly of electronics is relatively non-hazardous and can be done by cheap, minimally trained labour in a developing country context without harm is considered inaccurate by some stakeholders. The concept indeed needs to be applied with care for instance in case of manual dismantling of mercury containing components like CCFL backlights in LCD panels (which equally applies to EU dismantling efforts). .

In addition to this, the assumption that large exports of circuit boards will be required for the foreseeable future might be challenged by the new variably scalable technologies that use hydrometallurgy to process circuit boards and extract metals. This option would be preferred by some as it would provide more jobs in developing countries. However, lower recovery rates of the most important elements and risks of water pollution from acids consumption needs to be taken into account as well for local treatment.

Some stakeholders consider that the Best of Both Worlds philosophy may need to be a stop-gap measure in some places if care is taken to at the same time prevent illegal imports, but they do not see this concept as being a “best practice,” particularly for the longer term. But again, when implemented properly, the economics and environmental positive results from better separation are clearly indicated to even beat ‘EU best practices’ by means of mechanical separation. This, only when the entire package is implemented and not just the cherry picking part.

Case study. The e-waste solutions alliance for Africa

An example of how the StEP initiative works in practice is the cooperation of EEE producers with other electronics companies in Africa. Since 2011, producers such as Philips HP, Nokia, Dell and Reclaimed Appliances have worked together in the e-waste solutions alliance for Africa. The Alliance is working together with several African governments on the set up of regional and national e-waste legislation. The goal of the Alliance is to facilitate the development of practical solutions for e-waste management in Africa resulting in sustainable solutions for the collection, recovery and recycling of waste from electrical and electronic equipment.

7.2 Improve reuse in developing countries

Case study. WorldLoop ''Changing the e-waste cycle''

WorldLoop12 is an international non-profit organisation based in Brussels. Through its network of partners, sponsors and supporters, WorldLoop helps communities in developing countries to establish efficient, environmentally friendly, self-funding facilities for e-waste collection and recycling. As well as helping to solve the environmental threat that e-waste represents, these systems stimulate the local economy by creating jobs. Worldloop and partners try to bridge the digital divide by donating well tested IT equipment to educational institutes, where Worldloop tries to arrange for collection and recycling. In essence they attempt to implement the B02W solution for equipment they replace with newer donations and arrange for local recycling and return of the critical fractions back to Europe.

Case study. The Green e-Waste Channel: model for a reuse and recycling system of electronic waste in South Africa

Anahide (2007) proposes a model through a Green e-Waste Channel by defining the role of possible stakeholders. The Channel is defined as the infrastructure and the processes needed to reuse and recycle e-waste. The main stakeholders are refurbishers, collectors and processors. Producers, the government and NGO's can support the Green e-Waste Channel through a management, legislative and facilitative process. The potential role of each stakeholder is discussed.

The viability of the model of a Green e-Waste Channel in South Africa was assessed through a SWOT analysis (Strengths, Weaknesses, Opportunities and Threats). The analysis shows that the model reveals many opportunities with advantages for all stakeholders:

a) sufficient material can be provided to processors and refurbishers;
b) safe jobs can be created;
c) a convenient solution can be provided for the consumers;
d) a solution for end-of-life equipment can be offered for the producers; and
e) the channel helps respecting national and international regulations.

It should be noted that the current situation in South Africa is favourable for a successful introduction of a Green e-Waste Channel: the e-waste situation is relatively clean, with limited import and informal recycling, and there is a general move towards more sustainable waste management.

Action: Establish pre-authorised reuse centres

The core point behind this recommendation is that the amount of paperwork as such is negatively discriminating proper exports for those who follow the rules vs those who don't. Measures to streamline and improve the speed of work for legitimate trading needs to be investigated further.

As introduced in the Step Green Paper on the Effect of Waste Legislation on Transboundary Movements of EEE Destined for Reuse, a regulated channel of reuse organizations' equipment destined for reuse/refurbishment/recycle/recovery and disposal may be authorized and managed by regional or global collaborative system such as the Basel Convention (Aoki- Suzuki, Bengtsson & Hotta., 2012) or an independent auditing and control operator such as Producer Responsibility Organization. Pre-authorised facilities would be based on extended producer responsibility (EPR) and require less legislative control as they would be audited and accountable to a third party organization. To allow this type of e-waste trade a regulatory action might be needed by the Basel Convention/EU to change certain procedures (Wang, 2009).

[12] http://worldloop.org/

To aid the success of the channel, points to introduce and improve on would be:

- A waste database (Anahide, 2007) allowing collection facilities (retailers, civic amenity sites, refurbishment centres) and competent authorities for transfrontier shipment to record all e-waste processed (the origin and the destination of the parts, components or whole products). This waste database would also enable communication and sharing of information between the stakeholders;
- Increase of current quality and amount of WEEE, UEEE and EEE for reuse, refurbishment and recovery using a communication and marketing campaign (Anahide, 2007) to highlight the collection facilities within the public and businesses, specifying the type of equipment that can be recycled/reused ensuring material enters the formal channel and not the informal sector;
- Additionally a pick-up collection would be beneficial in built up areas once or twice per year. This could be developed through the waste database with persons registering the equipment and address for pick-up;
- Permit only official organizations with the appropriate licenses to operate within the channel, and export and import only permitted to the reputable stakeholders within the channel;
- Public campaign to inform the public to purchase components/equipment with PAS 141, or from reputable refurbishers or second hand equipment with the appropriate documentation indicating place of purchase to cut out informal competitors;
- If it is accepted into legislation that a PAS 141 standard or something similar is required for reuse products, parts and components, movement will become easier for official reuse organizations and informal processes may be reduced through loss of market.

The StEP Initiative proposes that the over-simplified story of e-waste export frustrates attempts by policymakers to regulate and manage the transboundary flows of discarded equipment. A more nuanced understanding of drivers, mechanisms and the global trajectory of discarded equipment is a necessity if efforts to regulate and manage transboundary flows of e-waste are to be effective (Wang et al., 2012).

Input from the CWIT consultation process

The green reuse channels and approved reuse centres recommendation is controversial, and some stakeholders contacted the CWIT consortium during the project's consultation process to show their point of view. They base their position stating that reuse can be a dangerous loophole through which all manner of hazardous scrap can be thrust to continue to exploit developing countries for cost externalization.

In their opinion, developed countries have no excuse not to develop their own capacity for managing all forms of hazardous waste, that they have the resources to do it and should therefore not be tempted to export such wastes to weaker economies. They also believe in the inaccuracy of stating that all e-waste needs both, manual and high-tech disassembly, as in some cases, like flat panel displays, full automated disassembly in a confined environment is preferable to manual disassembly.

Cheap labour comes in a context of less resources nationally available for education, legal rights, monitoring, control and enforcement systems (otherwise known as societal safety nets) to ensure workers are not exposed, and if they are, that they have redress, both medically and legally to remedy their unfortunate situation. They state that being poor is not a competitive advantage and should not be exploited as such. It is their view that we should be finding ways to enrich developing countries and their populations with real potential to create capital, not sending them hazardous waste, and its legacy of long-term costs.

They argue that the idea of removing electronic wastes destined for repair from the control regime of the Basel Convention is highly risky as it may result in every export characterized as export for "repair" and there would be no controls whatsoever.

7.3 Other specific items for consideration in developing countries

In addition to the above the following is recommended from a more holistic point of view:

- The Basel Convention has a procedure in place for returning illegal shipments to the country of origin. This seems not to work well in practice for several reasons. One of them being lack of communication and cooperation between the authorities in the countries involved. Improved training and more structural agreements functioning in practice, need to be established.

- Improve legislation, enforcement, monitoring and control. WEEE-specific legislation is still missing in many developing countries. Weak public institutions are unable to monitor and control legal compliance resulting in enforcement deficiencies. Developing countries need support to set up legislation fitting the conditions in their countries, as well as in enforcement. Immediate improvements cannot be expected, but long term support and commitment will be required to improve the situation gradually.

- Establish financing mechanisms for e-waste management. As is the case in industrialized countries, proper treatment requires a stable financing mechanism to enable the treatment and disposal of WEEE, parts and fractions thereof whose net treatment cost is negative. Additionally, the access to waste needs to be financed (see below). Extended producer responsibility (EPR) schemes are the main financial source as in many cases other sources are missing or not sufficient. EPR systems as practiced for example in the EU cannot be transferred to developing countries, but need to take into account specific framework conditions prevailing in many of these countries:
    - Smuggling of new and used EEE resulting in EEE on the market that escapes the EPR system
    - Numerous informal and formal importers of UEEE, that have to be integrated into the EPR scheme as otherwise large amounts of EEE are not covered and formal producers suffer from unfair competition.
    - Weak public institutions, often stricken with lack of transparency and inefficiency due to insufficient controls so that producers are not willing to involve public entities into the financing schemes while governments at the same time often try to play a major role in treatment as well as in the financing schemes for WEEE treatment.
    - Larger parts of the population have limited purchasing power. Financing schemes resulting in larger price increases of EEE will therefore restrict the access to EEE for many people and increase the attractiveness of alternative purchasing channels such as illegally imported and smuggled goods.

  Financing schemes thus need to be tailor-made for each country balancing the above conditions depending on their actual occurrence in the country.

    - Finance access to WEEE. In developing countries, the competition with the informal sector is the first challenge to overcome in order to achieve proper treatment. Informal sector operators avoid costs that arise when treating non-valuable fractions such as the proper removal of (H)CFCs from cooling and freezing equipment, the proper disposal of CRT-glass from TVs, etc. As enforcement institutions in developing countries are typically weak, the

enforcement of legislation preventing such informal treatment is only possible to a minor degree.

- Capacity building for policy makers, management and workers. The technical, financial and organizational understanding for e-waste management and treatment of policy makers and WEEE managers is often insufficient, and workers need to be trained to work more efficiently. Often there is an attitude that e-waste for itself is a source of wealth that just needs to be tapped and that highly mechanized WEEE treatment is progressive, while manual labor is primitive and inefficient. The potential of the manual treatment combined with the right degree of mechanical means is ignored.

- Establish access to downstream markets and customer-tailored optimization of output fractions. The knowledge about formal downstream markets is often limited, in particular for WEEE fractions and materials that have no adequate market or treatment possibilities in the country. Examples are printed wiring boards and plastics, above all the potentially hazardous ones with brominated flame retardants. Consequently, WEEE managers often do not know how to optimize output fractions in order to achieve the best price and improve the environmental performance. Once transboundary shipments of such materials become necessary, there is often a lack of understanding how to comply with national and international export regulations and procedures such as the Basel Convention. Such information must be made accessible, and the responsible persons need training and support.

8 CONCLUSIONS

One of the best ways to prevent WEEE exports is to get them treated in the country of origin. While many laws require treatment in Europe, this is not attractive to small and large scale players due to the high costs involved in proper recycling. Recycling and incineration technologies are expensive as also the costs for dumping caused by stringent environmental regulations and licensing. Regulatory compliance also implies high overhead costs for legitimate waste management countries associated with labelling, automation, book-keeping and other procedures. These economic burdens create disincentives for firms to engage in legitimate operations. In addition, the absence of quality control mechanisms, adequate monitoring and oversight do little to prevent unlawful acts. This deliverable recommends supporting proper treatment by implementing functioning treatment standards for WEEE recyclers and enhanced enforcement for all actors along the treatment chain. Providing financial incentives for pre-processors and other handlers of e-waste to report and treat WEEE as provided by law would reduce the economic factors inducing unregulated activities. Policies with economic incentives supporting both proper depollution and reporting practices should be put in place. The implementation must be augmented by specific policies, so that non-compliant recyclers cannot gain a competitive advantage over their counterparts. For instance, it is recommended that proper national reporting of treatment performance should be given priority over other reporting requirements like achievement of mass balance recycling targets. The focus should be on strengthening the reporting requirements on a national level for hazardous substances removed from WEEE and more targeted upstream inspections to reduce non-compliance with the Annex VII of the WEEE Directive regarding de-pollution.

One major issue with respect to illegal WEEE trade is the diversity in shipments with waste and used equipment of various shapes, sizes and age being exported leading to the difficulty in determining if the shipment is legal or illegal. Moreover, the reuse industry includes a wide range of operators, including individuals, small traders, charity organizations, large specialized refurbishers and so forth. The lack of clarity on key concepts and the implementation of many guidelines do not make things

any easier. In particular, the CWIT consortium has identified the need to develop measures on distinguishing between goods for proper reuse and those with little or no life remaining. The proposed solutions put forward by the research team are to use harmonised definitions for reuse, preparation for reuse and refurbishment; develop and harmonise reuse standards and guidelines; provide training and capacity building for the refurbishment/reuse industry. In addition, promoting reuse by the setting up of targets for re-use is another item to be considered.

Another matter of serious concern is the occurrence of thefts in municipal collection sites. While many retailer's facilities also act as collection points, it is advisable to expand the collection network by allowing recycling and logistic facilities to become collection points, these being less vulnerable to thefts. Such initiatives have already been implemented in some EU countries. The waste management industry could participate in this action and help in expanding such structural arrangements to the rest of the EU territory.

Adding to the complexity of the WEEE value chain is the extensive network of different types of actors involved in multiple activities. The CWIT consortium recommends to involve different types of stakeholders in initiatives and programmes to counter WEEE illegal trade. As an example, establishing formal partnerships between law enforcement authorities and the WEEE industry would facilitate exchange of knowledge and expertise. While government administrations could assist industry actors to gain more understanding of WEEE legislation and compliance therewith, the industry experts are well-positioned to provide technical knowledge to government officers on critical issues like distinguishing WEEE from UEEE and identifying the hazardous nature of a shipment.

And finally, an undisputed fact is that the destination countries usually have dominant informal sectors in WEEE treatment. Rather than attempting to uproot this firmly established sector, it would be worth considering if technical know-how should be provided to these countries to improve the standards of treatment and recycling in the informal facilities. Due to the enormity of this market in Asia and Africa and its own domestic consumption and thus e-waste generation growth rates above 10% annually, this recommendation should be viewed as one with a long-term, gradual implementation phase. Other proposed solutions put forward by the research team are to establish green reuse channels and approved reuse centres, the requirements being that sufficient upstream inspections take place, the guidelines for testing and packaging are followed and the Basel Convention/ Waste Shipment Regulation is adhered to.

The recommendations outlined in this deliverable directly impact the reuse and WEEE treatment industry. While some of the initiatives proposed are intended for policy-makers in general, the WEEE industrial players should not necessarily be deemed as passive actors but active stakeholders playing key roles in the implementation processes. They can be either be the initiators in exchange and discussion or provide strong support in the successful implementation of the remedial actions. It is also in their interest to support these actions to ensure a level playing field and to reduce unfair competition. Cooperation between government bodies and the industry while supporting the legitimate operations would also enable the much needed change of direction to successfully address the pressing concerns on current levels of WEEE mismanagement and undesired trade.

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CWIT work packages and deliverables

Work package 2, Deliverable 2.2, *Report on WEEE components and recycling*.
Work package 4, Deliverable 4.1, *Typology of WEEE operators*.
Work package 4, Deliverable 4.3, *Report on the dynamics of WEEE stream.*
Work package 5, Deliverable 5.2, *Volume of WEEE Illegally Traded*.
Work package 6, Deliverable 6.1, *Recommendations related to the European Legal Framework*.
Work package 6, Deliverable 6.2, *Recommendations for Law Enforcement Organisations*.
Work package 6, Deliverable 6.4, *Recommendations for the electronic Industry*.
Work package 6, Deliverable 6.5, *Roadmap for future research and technology development*.

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CWIT Final Conference, Lyon, France, from 25 to 26 June 2015.

Ninth meeting of the Conference of the Parties to the Basel Convention (COP IX), Bali, Indonesia, from 23 to 27 June 2008.
http://www.basel.int/TheConvention/ConferenceofthePartiesCOP/PreviousMeetings/PreviousMeetingsDocuments/tabid/2409/Default.aspx?meetingId=1&sessionId=40

ANNEX A. MANDATORY STANDARDS FOR TREATMENT IN EU TRANSPOSITIONS

Best practices. Text from the Dutch WEEE Directive transposition[13]:
(…) Article 11. Proper treatment says:

1. A WEEE treatment operator shall ensure that separately collected WEEE undergoes proper treatment in accordance with the minimum recovery targets of Annex V of Directive 2012/19/EU.
2. Proper treatment as referred to in the first section shall at least entail that:
   a) the treatment, other than preparing for re-use and recovery or recycling operations, shall include the removal of all fluids and a selective treatment in accordance with Annex VII of Directive 2012/19/EU;
   b) the treatment of the collected WEEE shall take place using the best available techniques;
   c) the treatment of the collected WEEE shall take place in compliance with the technical requirements set out in Annex VIII of Directive 2012/19/EU, and
   d) from 1 July 2015 the collected WEEE will be treated in accordance with WEEELABEX Treatment.

3. Contrary to the provisions of section 2 (d), redundant household appliances containing volatile fluorocarbons or volatile hydrocarbons will be treated in accordance with NEN-EN 50574.

4. The party shipping WEEE outside the Netherlands shall ensure, and shall demonstrate prior to the shipment, that the WEEE will undergo proper treatment under conditions that are equivalent to those set out in the second section and the minimum requirements referred to in Annex VI of Directive 2012/19/EU.

5. Documents concerning the shipment as referred to in the fourth section are kept by the party initiating the shipment of WEEE for at least five years (…)

WEEELABEX treatment is in the law defined as treatment as described in the WEEELABEX normative document on Treatment V9.0.

The Irish case.
Ireland also implemented a similar initiative. In the Irish transposition of the WEEE Directive, we can read:

(…) Treatment and shipments of waste electrical and electronic equipment
22. (1) Each—
   a) producer that is responsible for financing the environmentally sound management of waste electrical and electronic equipment in accordance with the provisions of regulations 16 and 18 (1) or, as appropriate,
   b) final user of waste electrical and electronic equipment from users other than from private households that—
      i. is responsible for financing its environmentally sound management in accordance with the provisions of regulation 18(2), or
      ii. avails of alternative financing methods as provided for in regulation 19(1),
         a) shall ensure that all separately collected waste electrical and electronic equipment undergoes proper treatment which shall, as a minimum, include the removal of all fluids and a selective treatment as set out in Schedule 9 and

b) shall ensure that all separately collected waste electrical and electronic equipment is treated in accordance with the WEEELABEX normative requirements or any other equivalent EN treatment standards. (…)

Furthermore approved bodies, in order to get approved by the competent authorities, should submit a declaration stating that all separately collected WEEE shall be treated in accordance with the WEEELABEX normative requirements or any other equivalent EN treatment standards.

The French case

The French transposition of the WEEE Directive refers to the CENELEC standard available when the legislation was being developed.

Article 3 of the Arrêté du 8 octobre 2014, reads:

(…) household appliances containing volatile fluorocarbons or volatile hydrocarbons are treated in accordance with the NF EN 50574 April 2013. The electrical and electronic equipment waste treatment facilities meet the general standard NF EN 50625-1 standard treatment "General Requirements of treatment " (WEEE Treatment General Requirements) of 4 July 2014. "

The Italian case

Since 2008 the Clearinghouse and the main national recyclers associations signed an agreement on minimum treatment standards. Standards were defined per each waste stream and focusing on pre-treatment.

All compliance schemes collecting and treating household WEEE, which are by law requested to join the Clearinghouse, committed themselves to deliver waste for treatment only to those plants compliant with the standards defined. They also committed to ensure, in case of intermediate warehousing steps, that full treatment was carried out in a subsequent step along the recycling chain.

A pool of third party companies was selected to ensure auditing to plants. Conformity checks have now a 5-year validity. List of plants compliant with minimum standards, per each waste stream is available on clearinghouse website.

Since 2008 the clearinghouse is monitoring that all household waste collected by Compliance Schemes is handed over only to accredited plants.

With the transposition of WEEE Recast a specific decree setting standards for treatment is foreseen. The role of the clearinghouse will be expanded to ensure reporting of WEEE collected by all actors involved along the recycling chain.

All treatment plants will have to register with the Clearinghouse and it is be probably expected that reporting of WEEE treated (the so-called “all actors” model) will have to cope with compliance with minimum standards currently defined or with their updated version.

ANNEX B. CWIT FINAL CONFERENCE PARTICIPANT FEEDBACK SUMMARY

CWIT FINAL CONFERENCE PARTICIPANT FEEDBACK SUMMARY
25-26 June 2015

Forty-two participants responded to our request for feedback on their personal views related to the recommendation clusters set forth by the CWIT consortium. The recommendation groupings constitute four main themes and a cluster of four recommendations under each theme listed in the table below.

Theme 1	Theme 2	Theme 3	Theme 4
1.1 Educate consumers	2.1 Improve treatment	3.1 Waste codifications	4.1 Information management system
1.2 Improve collection	2.2 Improve reuse	3.2 Consistent guidelines	4.2 LEA capacity building
1.3 National WEEE monitoring	2.3 National WEEE networks	3.3 Train authorities	4.3 International WEEE networks
1.4 All actors report	2.4 Smarter inspections	3.4 Harmonize penalties	4.4 Enhance prosecution and sentencing

In the feedback form six questions were outlined in relation to the above framework. The questions and the corresponding answers are presented below.

A. Please select up to three recommendation clusters (of the 16 total) which you believe have the highest benefit-cost ratio (i.e. benefits exceed highly the implementation costs), as well as high likelihood of bringing sustainable improvements/positive results?

Listed below are the number of votes received for each recommendation in descending order.

1.1 Educate consumers (16)

4.3 Improve international WEEE networks (13)

1.2 Improve collection (12)

4.4 Enhance prosecution and sentencing capabilities (12)

3.2 Consistent guidelines (11)

2.4 Smarter inspections (10)

4.1 Enhance international information management (9)

3.4 Harmonize and enhance penalty systems (7)

4.2 Invest in capacity building for law enforcement agencies (7)

1.4 All actors report (7)

1.3 National WEEE monitoring (6)

2.3 Enhance national WEEE networks (6)

2.2 Improve reuse (5)

3.1 Improve waste codification (5)

2.1 Improve treatment (4)

3.3 Government capacity building, train authorities (3)

B. Please write brief justification about your top 3 choices (please indicate the recommendation cluster number).

The summary of the reasoning provided behind the selection of each recommendation is described below.

1.1 EDUCATE CONSUMERS

16 participants selected this as having highest priority with the following justifications.

- Education is the first step for a change.
- Consumers are the starting point for WEEE flows and hence need to be convinced about the importance of bringing old equipment to a legitimate collection point. Failure to do so will result in improper disposal and/or storing those in households.
- Consumers must understand how their discarded equipment lands up in illegal e-waste shipments. So awareness is essential for consumers to recognise their role in solving the WEEE problem.
- Consumers are not well informed about the externalities associated with the WEEE. An increase awareness raising would help improve better collection and eventually treatment efficiencies.
- It appears that a majority of offences are committed due to a lack of awareness in regulation and consequences, excluding criminal cases motivated by economic benefits. Raising awareness of collecting and treating WEEE in monitored system would bring positive results. This has to be in balance on the other end with efficient enforcement and dissuasive fines.
- Consumer awareness will lead to better sorting of WEEE.
- Consumer habits can determine if the equipment goes to legal or illegal streams.
- Proper disposal by consumers will increase collection rates and prevent leakage.
- The quickest win is provided if consumers bring WEEE materials to the appropriate channels.
- Creating consumer responsibility is one of the best improvement measures.

1.2 IMPROVE COLLECTION

12 participants selected this recommendation as having the highest priority with the following justifications and comments

- This is the beginning of the whole problem and is the first step in preventing leakages.
- It is the initial point in the process of disposal and securing these facilities is the basis to guarantee an efficient process.
- The example of Norway is cited, where leakages from collection points (private actors/shops) is highly visible and apparently the biggest vulnerability.
- There is a natural tendency for people to behave better under vigilance and securing collection points will result in better behaviour.

- This is important to prevent thefts and acts as an obligation to guarantee the consumer that the discarded equipment will be properly recycled and treated.
- This measure ensures that no material falls into the hands of scavengers. However take-back systems should not have monopoly.
- Proper collection (possibly regulator approved), is a big step in preventing illegal activity.
- Securing collection points is a relatively low-cost measure.
- This is a cost-effective measure.

Comments
One respondent indicates that security at collection points should include ban in cash transactions.

2.4 SMARTER INSPECTIONS

12 respondents indicated this as being highest priority with the following justifications and comments

- To use limited resources effectively, targeted inspection is essential. To implement this measure, it is important to acquire enough information on how to target the right shipments in order to use resources effectively.
- It is important for inspections to be targeted to (illegal) upstream waste sites for control purposes in order to prevent illegal activities going downstream.
- Because recycling companies in Germany report they are never inspected.
- Due to limited resources available this is a useful measure In terms of costs and benefits.
- It is a key measure for smarter selection.

Comments

Inspection strategies should include guidance on gathering and analysing intelligence data and requires a consistent and harmonized approach. The risk indicators developed in some countries can be used by others.

4.3 INTERNATIONAL WEEE NETWORKS

13 respondents marked this as having the highest priority with the following justifications and comments

- The current situation in this regard is very poor and definitely needs improvement. This positive step will also enable putting in place some other recommendation measures.
- Illegal networks have no borders.
- A global approach is the key towards solving the problem.
- Illegal WEEE export is an international concern and hence requires international cooperation to prevent this activity.
- It is an established fact that WEEE thefts are cross-border (within EU & beyond) organised crimes and hence reinforcing international cooperation is essential.
- This is crucial to coordinate internationally about the application of international regulations around WEEE.
- Co-operation among international agencies and governments is very important because the actions implemented within the European Union will be incomplete if no actions are taken in the destination countries of illegal WEEE shipments.
- One step in enhancing international cooperation is to strengthen existing networks E.g. IMPEL). The networks include police, prosecutors, customs etc.

- Communicating and sharing information results in the creation of best practices.
- This is an important improvement measure as it will assist in learning from each other's experiences.
- There is a requirement for operational meetings for LEAs and operators at the EU level.

Comments

Cooperation between existing networks such as Interpol, Envicrimenet/ Europol and IMPEL TFS needs to be used (and linked)for exchange of modus operandi and if possible nominal data. This will lead to intelligence led enforcement/ policing/ inspections. The national desks at Europol can play an important role for the exchange and storage of this data.

4.4 ENHANCE PROSECUTION AND SENTENCING

12 respondents were in favour of this as being the first priority with the following justifications and comments.

- Currently there is a lack of awareness by judges and prosecutors leads which is the reason behind the infrequent and low sentences.
- There is a big gap in this area and the improvement step will support some of the other recommendation measures.
- The current legal system lacks a consistent and harmonized concept of appropriate sanctions.
- To achieve a level playing field, avoid port hopping, fight against fraud, forgery, etc .it is necessary that the last link in the enforcement chain, prosecutors and judges are being well trained and are aware of the specific issues in this complex working field. Initiatives as the IMPEL TFS prosecutors project, ENPE, Eurojust needs to be supported. It is important for the prosecution, sentencing and punishments to be more or less harmonized within the European Union.
- As this measure implies specialised training to tackle "specialised" environmental crimes, it is a necessary positive step.
- An effective enforcement regime requires specialized prosecutors and judges who are educated on the issues surrounding WEEE in order to enable them to effectively deal with WEEE related breaches and offences.
- As a positive step to deter and combat crimes, it is important to inform potential perpetrators about the consequences of criminal actions. This is both a preventive and reactive improvement measure.

Comments

In this context one respondent noted the need for enforcement to be strengthened by hiring more personnel, creating more efficiency, reducing bureaucracy, developing a more harmonized approach, increasing the exchange of information, and giving easy access for stakeholders to report suspicious or criminal acts. Another respondent indicated that enhanced prosecution and sentencing should include swift and dissuasive penalties, not necessarily penal but substantial monetary penalties. The need for international cooperation among judges was also suggested as an improvement step. Finally, according to one participant Member States which do not comply with the targets of the WEEE Directive should be prosecuted as well.

3.2 CONSISTENT GUIDELINES

11 respondents supported this as being the highest priority with the following justifications and comments

- Distinguishing between what is legal and what is illegal in many cases is a big problem.
- More guidance is needed for Annex VI and getting a common understanding is essential.
- Many terms are ambiguous and in need of clarification.
- An effective discussion on WEEE issues is not possible without precise and exact definitions. Consistent guidelines will help standardisations and assist the development of clear notions and recommendations.
- Consistent interpretation of e-waste vs. used goods is necessary to prevent illegal shipments. Export for repair is still a grey area and there is a need for consistent interpretation.
- Following up on this recommendation will ensure a level playing field.
- This is a necessary step to facilitate all actions along the UEEE/WEEE chain.
- Consistent guidelines will facilitate legal trade.
- Consistent clear guidelines will make inspections and prosecutions easier and thereby increase the likelihood of conviction.
- This measure is essential as currently there is a large number of diverse practices. The existing system is hard to understand and implement for many actors in the value chain.
- Consistent guidelines would assist enforcement bodies and notifiers of waste.
- Proper knowledge and training are important and to reach this goal consistent guidelines are essential.

Comments

It is recommended for the guidelines to contain information for customs and exporters on how to distinguish between UEEE and WEEE (e.g which kind of test, what kind of packaging, what reports etc.), and include common and simpler procedures for notifications. Another suggestion is to cover information on how to calculate the economic value of offences related to illegal shipments/collections. The economic rationale will help draw attention from police, prosecutors and judges.

4.2 LEA CAPACITY BUILDING

7 respondents were in favour of this recommendation as having the highest priority with the following justifications and comments

- Inspecting WEEE is particularly difficult calling for more investment in capacity building in law enforcement agencies.
- There are fewer inspections and few specialized prosecutors due to the limited capacity in law enforcement agencies.
- Given the amount of waste produced it is necessary to increase resources (financial and personnel).
- More financial capacity is required to increase the risk of detection for illegal operators and exporters, which is a big measure to counter these activities.
- There is a need for more monitoring and enforcement, which requires increased capacity. Targeted enforcement by knowledgeable regulators will facilitate early detection and prevent crimes.
- Law enforcement authorities need more operators and operational meetings at the EU level.

Comments

Capacity building should include better cooperation across law enforcement agencies like police, customs, environment etc.

4.1 INFORMATION MANAGEMENT SYSTEMS

9 respondents indicated this to be the highest priority with the following justifications

- Currently there are strong knowledge gaps in the international arena.
- More information is required on what is happening and what the economic incentives are for people involved in illegal export of WEEE.
- An information sharing system for authorities is highly important. All company data in this information platform should be digitalized.
- llegal trade is an international issue and the management of international information is crucial.
- E-waste trafficking requires a global approach. Improving information exchange as well as cooperation and collaboration with the international authorities and will help in the successful management of the e-waste stream.
- International information management and dissemination is crucial as this assists in building capacity and allows the member states to push the requirement for action /agenda of illegal e-waste shipments. Member states often do not see the global context of a problem.

Comments

The international information exchange needs to be improved and enhanced. This requires a channel which is secured and easy accessible. According to the amendments of the European Waste Shipment Regulation EU member states are obliged to draft inspection plans based on risk assessments. This obligation is an opportunity to connect the data between law enforcement agencies and supervision bodies. Within Europe there are networks which are useful for this like Envicrimenet, Europol, Interpol and Impel TFS.

3.4 HARMONIZE PENALTIES

6 respondents selected this as top priority with the following justifications.

- This is important because presently e-waste related crimes are not given the importance they deserve either by the police or by the public.
- Currently the legal system lacks a consistent and harmonized concept of appropriate sanctions.
- The penalties vary considerably across countries depending on the location where illegal waste shipments are detected. The diverse penalty systems are definitely in need of greater harmonization.
- Coordinated approach with other member states is necessary to hinder illegal exports.
- It is absolutely necessary to create global rules in this area.
- WEEE crime is a global issue and needs tough and harmonized responses. The general aim is to raise awareness on “victimless” environmental crimes, even if this crime may not actually fall into the “victimless” category.

1.4 ALL ACTORS REPORT

7 participants selected this as a top priority recommendation with the following justifications and comments

- It is important to take into account the data reported by WEEE managers (waste managers holding permits to collect and treat WEEE), distributors and take-back systems. Not only the data reported by the take-back systems.

- A harmonized reporting system is necessary making it mandatory for all actors to be registered, including private businesses, treatment plants etc.
- The more collection facilities (waste mangers, municipal collection points, etc.) are authorized to collect WEEE, more WEEE will be collected properly in accordance with the WEEE Directive leading to an improvement in WEEE collection and recovery rates.

Comments
It is necessary to find incentives for legal/informal actors to report on collected WEEE and EEE for reuse. One option is to legalise WEEE collection in the informal sector although controlling the quality of WEEE treatment in these sectors will still be required.

2.2 IMPROVE REUSE

5 participants selected this as high priority with the following justifications

- Reuse is an upstream solution and should be done in a much higher degree.
- Improve reuse as this would help prolonging the lifespan if an equipment. However, the problem is people do not normally want a second-hand item even though it is environment friendlier.
- Prolonging the durability of electronic goods by improving reuse, facilitating repair (e.g. separation of components) can reduce the tsunami of e-waste and render the problem more manageable.
- Reuse will always be a driver because people in less developed countries need the technology. It is important to regulate but allow reuse in countries with low labour costs. This makes reuse feasible and will help grow micro economies in less developed countries.
- Reuse is the main business in the global south countries (non-OECD) for over 15 years. It is also one of the main drivers of U/WEEE shipments. Reuse is also an actual topic in Europe. So setting global standards is a viable option.

3.1 WASTE CODIFICATION

5 participants viewed this as being high priority with the following justifications

- Targeted TFS/WSR related inspections necessitate better information in the customs declarations (including waste codes) and following up on this recommendation is a fairly simple and concrete task.
- Harmonization of codes is intrinsic to assist in investigation and cross-collaboration between agencies/enforcement bodies.
- Common waste codes are necessary for all e-waste transports, including downstream flows from treatment plants. This will facilitate prosecution and enforcement and make the systems more efficient.
- This is the key measure to enable distinguishing between EEE, UEEE and WEEE.
- It is important to speak in the same language within the EU to help prevent illegal exports.

2.3 NATIONAL WEEE NETWORKS

6 respondents selected this as top priority with the following justifications and comments

- Strengthening networks is necessary for information sharing and collaboration.
- Operating within networks helps in finding common and agreed solutions.

- Enhancing WEEE networks would lead to a better exchange of experiences and best practices resulting in more intelligence led inspections, upstream site inspections, capacities building of relevant authorities. The ultimate result will be a simplification of legislation and reaching a common understanding we are the creators of the system which is well misused by criminals.
- Networking and bringing stakeholders together is essential to take common decisions.

Comments
Plenty of knowledge exists but we have to learn how to make use of it. It is recommended to use existing agencies rather than forming new ones.

1.3 NATIONAL WEEE MONITORING

6 respondents recommended this as being of high priority with the following justifications and comments

- A lack of homogeneity among the member states is prevalent with regard to WEEE collection and reporting. Reporting on a national level is required for obtaining better quality data and sound decision-making processes.
- It is important to make sure that all member states have an independent national register in place where "put on market" and WEEE treated volumes by producers and recyclers are recorded.
- Better data management helps decision makers to allocate resources.
- Monitoring system would be the most effective complement to enforcement. Monitoring would allow efficient inspection of upstream waste sites.

Comments
The EC should require that the monitoring systems in all Member States are uniform so that leakages could be more easily traced. The financing of monitoring should take into consideration the "polluter pays" principle.

2.1 IMPROVE TREATMENT

4 respondents noted this as being of high priority with the following justifications and comments,

- The main driver for WEEE collection and recycling is its economic value. WEEE is regarded as a promising secondary source of metals. High tech, green and sustainable technologies for metal recovery from WEEE would provide an incentive for improved collection and treatment efficiencies.
- This is an important measure to negate environmental damage and health risks to people working in the treatment sector.
- It is the key to minimizing risks to health and damage to environment.

Comments
Make CENELEC EN 50625- series legally binding either by the EC (implementing acts) or by legislator permits of take-back systems etc. in member states.

3.3 TRAIN AUTHORITIES

2 respondents indicated this as top priority with the following justification

- There is a big knowledge gap in the law enforcement agencies. Only a handful of specialists are operating in governmental administrations.

C. Please identify the least relevant recommendation cluster from the list of the 16 recommendation clusters Please also explain the reason for this (e.g. high cost; low impact; high risk of failure in terms of sustainable results etc.).

The least relevant measures identified by participants are listed below. The rationale behind the selection is listed in the table below. 1.1, 1.4, 4.2, 1.2 and 3.4 have the maximum selections as being low priority.

RECOMMENDATIONS	JUSTFICATIONS
1.1 EDUCATE CONSUMERS (3 selections)	If the main problem is supposed to be thefts from collections points, educating consumers will not help. Moreover, the economic driver for illegal export is far more important than whether or not the consumer knows what to do.
	This is the last priority step as consumers are mostly aware or feel the need to behave in an environmentally friendly manner.
	Consumers are often aware of illegal practices but are not concerned. Economic incentives will only bring about a change.

1.4 ALL ACTORS REPORT (3 selections)	No justification given by one participant.
	Notes are not legible.
	This measure appears to be a resource intensive and bureaucratic solution. Other recommendations are of higher priority.
4.2 LEA CAPACITY BUILDING (3 selections)	Investing in infrastructures (e.g. more buildings) is not the most essential step. Measures should be more action oriented.
	We should make better use of existing resources.
	Authorities to counter this illegal activity already exist but are not effective. More administrative costs will not solve anything.
1.2 IMPROVE COLLECTION (3 selections)	Illegal shipments do not start from the collection points but before.
	This is a low-impact measure
	The "ban on cash" recommendation is least relevant, because the analysis done is incomplete and some other possibilities and actions carried out in other countries have not been studied.
3.4 HARMONIZE PENALTIES (3 selections)	Highly unlikely to happen. Member States will not consent to this. It will therefore be a high-cost measure.
	Unrealistic as legal traditions vary greatly across European nations.
	Many differences exist between Member States. Harmonizing and enhancing the system would not be an efficient option.
2.1 IMPROVE TREATMENT (2 selections)	Other things have more priority in the EU. Outside the EU improving treatment is an essential step.
	The available technology for treatment is already very good.
2.2 IMPROVE REUSE	The gap between and criminal actions (illegal trade, inappropriate

(2 selections)	treatment) will continue to exist or even become larger.
	This is a long term project.
4.4 ENHANCE PROSECUTION AND SENTENCING (2 selections)	A useful but not very essential step. This is an internal issue for governments
	Notes are not legible.
3.1 WASTE CODIFICATION (2 selections)	This is relevant but not a priority. Harmonized interpretation is the key. Actors indulging in illegal activity will never code this as an "illegal activity".
	From the recyclers' point of view, this does not have a significant impact as the processing of various types of WEEE does not necessarily differentiate greatly.
3.2 CONSISTENT GUIDELINES (1 selection)	Consistent guidelines already exist in countries. Harmonization is more necessary.
4.1 INFORMATION MANAGEMENT SYSTEMS (1 selection)	It is difficult to talk to different authorities in the same country and outside. This is a next to impossible mission**.**
4.3 INTERNATIONAL WEEE NETWORKS (1 selection)	International cooperation between enforcement agencies is already successfully facilitated by INTERPOL (NCB), EUROPOL (Sicna), EUROJUST (J:T). What might be useful is to include more agencies like environmental agencies in these networks.
1.3 NATIONAL WEEE MONITORING (1 selection)	The national monitoring system is based mainly on the collected material in kilograms. One of the weaknesses is the leakage of washing machines in the metal scrap sector. This is a known issue but monitoring in kg instead of a proper using figures may be misleading. The leakages in terms of weight may be high but in terms of environmental impact this may be one of the less important streams.
THEME 1 (2 selections)	Integrity in WEEE collection sites is important but waste shipments must be regulated and controlled which is of higher priority as it is money driven. Focus must be given to TFS and data collection.

	These are purely national issues.
THEME 4 **(1 selection)**	It seems many projects, activities, approaches already exist in this filed but few are aware of them. Hence, there is a greater need to improve coordination to execute what has already been developed.

Comment

One respondent considers all recommendations very relevant but harmonizing penalty systems maybe a difficult recommendation to start with. More awareness among legal entities is necessary before addressing penalty systems.

D. Have we missed one (or more) highly important recommendation cluster (s) from our current list? If yes, can you please indicate them, with a brief justification?

The additional recommendations provided are listed below. The first section outlines recommendations that have are covered in the CWIT recommendation clusters, either directly or indirectly. The second section comprises additional suggestions that have not been addressed in the CWIT deliverables. The last section lists the generic suggestions on the study methodology.

Suggestions covered in the CWIT deliverables

- Ban on cash transactions. It is the best means to reduce theft at borders if adopted in the EU (mentioned by 2 participants). One participant recommends ban on cash payment for metals specifically as it is the first step in black marketing.
- Make it more profitable to discard waste in the country or within EU.
- Working better with environmental friendly treatment outside the EU or in downstream activities.
- Share risk indicators-"what to look for".
- Hold operational meetings for intelligence officers at EU level in order to discuss tactics, current cases etc.
- Taxability of transaction would enable the financing of metal scrap dealers.
- Illegal shipments and other activities also take place from the take-back systems and within established systems and should be taken note of.
- Due to the relatively high profits gained from illegal waste trade, economic incentives for proper waste collection and treatment are crucial. One example is establishing a deposit system for e-waste and batteries.
- Waste prevention (including how to measure).
- Collaboration with receiving countries (mentioned by 2 participants). This is considered an important measure by one participant in order to address the problem of imports from the recipient countries' perspective.
- Consider how to facilitate flows within the supply chains between verified locations, e.g. establishing green lanes between pre-authorized or certified locations or put in place simplified procedures.
- In addition to "securing collection", add the importance of the location of collection points-e.g. shops.
- Ensure clear systems and description of tasks across authorities. Include what information can be disseminated and on what basis.
- Design policies in tandem with economic principles as money talks.
- Discuss the issue of "victimless" crime. Devise ways of finding ways of exposing victims (from pollution or from former owners of discarded WEEE) will facilitate potential prosecutions.
- Improve reuse of metals by producers. This is a difficult step in the circular economy because the reused material has to satisfy the producer and the product has to be competitive in comparison to new materials.
- Consider using CWIT or other organisation to initiate the process of establishing a central repository for storing data, listing best practices, successful prosecutions, etc. that should be accessible to all enforcement authorities in the 28 Member States. The repository should be simple. Establish ownership for post CWIT.
- Waste codifications should make distinctions between UEEE and product.
- Map downstream activities. Make unannounced audits internal control of take-back companies to be able to secure that the map downstream corresponds to the terrain.
- Mention the possibility of imposing a monitoring system considering the “polluter pays” principle as in France and Croatia.

- Stress the issue of capacity building in receiving countries although it is often a political decision.

Suggestions not covered in the CWIT deliverables

- Provide technical support to African countries.
- Planned obsolescence.
- Focus on upstream activities.
- Enforcement process approach and roles of actors.
- Give NGOs right to take legal actions against planned obsolescence etc.

Generic suggestions on study methodology

- Take into consideration just the French case study for topic 1 is not an inclusive approach. So it is recommended to include other case studies in other member countries and highlight good and bad practices.
- Participant sees a lack in prioritization of recommendations and to which entity it is targeted, i.e. who exactly needs to follow up on the recommendations. Further, it is not clear which areas need further investigations.
- It is essential to analyse in detail the model applied for WEEE in each Member State, assess the strengths and weaknesses, negative and positive aspects in each case. This project, with the implications and possible consequences, cannot focus only on a case study. All the possible models and options across Europe as the French case, need to be analyzed and taken into account in this project and its final recommendations.

E. Could you please note below, which of the four CWIT Themes/Topics you see of highest importance ("HIGH") and of lowest importance ("LOW")-again, with a brief justification.

Theme 3 and 4 are considered of the highest importance with 17 votes each. Theme 4 is considered of lowest importance with 6 votes.

Themes	High Priority	Low Priority
Theme 1	16	5
Theme 2	11	5
Theme 3	17	4
Theme 4	17	6

Justifications for high priority

Theme 1

- Producers don't reuse as the amount is not high enough.
- Improved collection rates will better control the e-waste streams and all related actors.
- It is one of the best methods to reduce illegal activities.
- Use only reliable operators with high operation standards.
- This is the most important measure to be taken in order to improve quality of data.
- It is an example of a best practice.

Theme 2

- To help identify where to direct investments and resources.
- Reuse means extending the life of EEE.
- Economy is the main driver.
- Recovery of materials from WEEE as a secondary source is the main driver for recycling.
- It is an example of a best practice.

Theme 3

- Needs clearer descriptions to be pictured as black and white and not grey areas.
- Clear and precise legal framework is the foundation for continuous work.
- Legal framework and prosecution/enforcement are essential.
- Important to implement the same regulations (but be careful with Basel Convention).
- Legal framework must be in place before enforcement takes place.
- Legal framework is well placed, but there is still need for improved implementation
- A level playing field is essential in all countries. This is also needed to accomplish the goal of WEEE legislation being implemented in all Member States.

Theme 4

- Legal framework and prosecution/enforcement are essential.
- Important to be managed with efficiency and in a cooperative manner.
- A same level playing field is essential in all countries.

Justifications for low priority

Theme 1

- Collection is not the main problem
- These are only upstream solutions.

Theme 2

- If other themes are well-managed this becomes less important.

Theme 3

- Proper networking would resolve this issue

Theme 4

- Fines would me more effective than prison sentences.
- Criminal actors will always devise new means of violating.
- This is more of a long-term issue.
- If the system only relies on enforcement and prosecution, the same is already lost before it even started.
- Since priority is an issue, the other three clusters are of more importance.

- Preventive measures should include incentives rather than prosecutions.
- Because of different national judicial systems, exchanges of experiences is not efficient in such major incidents.

F. When it comes to the follow-up dissemination, detailed implementation planning and the actual implementation of the CWIT recommendation clusters (after August 2015), do you think your organization could play some role in this process? If yes, can you please provide some practical details (and, the name of your organization, if possible)?

Several participants have extended their willingness to support the CWIT project in a number of ways.

Austria

The Austrian working group on reducing illegal trade with wastes has expressed willingness to support.

Croatia

The environmental administration of Croatia is willing to take part in the implementation of the project recommendations. Croatia has established a national monitoring system for WEEE. However, the request needs to be formally submitted for approval from the management of the Ministry for Environmental and Nature Protection of Republic of Croatia.

France

The French Environmental Office (OCLAESP) has to run this request in the office. A second attendee from this administration expressed willingness to support Cluster 4.

Eco-systémes, France is ready to organise press relations.

The University of Poitiers, France could help in disseminating the information for educational purposes and create guidelines/recommendations for e-waste collection at the university.

A PhD. Student researching on the WEEE sector has offered general support.

Germany

The regional government of South Hessen (Land Hessen/Regierungspresidium Darmstadt), Germany is interested in CWIT.

The Institute for Structural Policy and Economic Development (ISW), Germany, is part of the WEEE MODELS Project consortium, which carried out a best practice study on WEEE logistic solutions and legal frameworks in 3 regions. ISW is also involved in CWIT findings and recommendations and future WEEE projects.

A German agency in Baden-Württemberg has offered help if required from a German competent authority for transfrontier shipments and take-backs.
SAA Sonderabfallagentur Baden-Württenberg GmbH

Norway

The Norwegian Environmental Agency has expressed interest in contributing without referring to details.

The Norwegian Environmental Agency wants to be informed when the recommendations are more concrete.

Spain

ECOASMEUES, Spain has offered general support.

The Spanish Federation of Recovery and Recycling (FER) has offered help.

Sweden

A contact person from the Swedish police force has offered help depending on the final scope.

Switerland

The Swiss Federal Office for Environment (FOEN) can provide information on: Information exchange between enforcement agencies, best practices, repatriation cases and guidelines on waste and used products.

The Netherlands

One contact detail has been given without indicating any support for the recommendation clusters.

The Dutch Environment and Transport Inspectorate has expressed interest in contributing to CWIT. Human Environment and Transport Inspectorate, Intelligence and Investigation Division (ILT-IOD).

United Kingdom

The Environmental Agency, England is willing to extend support.

Other

EPA has offered support in disseminating in the US, especially government agencies and stakeholders.

A PhD researcher focussing on metal recovery from WEEE via sustainable biological technologies, has expressed interest in contributing to CWIT in the area of sustainable metal recovery technologies. The institute is looking for partner to collaborate in our metal recovery technology to scale up to a pilot scale.