



WEEE NET9

A3.3.2 Status Report on the regulations, funding and certification schemes on WEEE handling

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Acronyms

Art.	Article
CBI	Climate Bond Initiative
CDE	Classification of Development Expenditures
CE	Circular Economy
CEI	Czech Environmental Inspectorates
DNSH	Do No Significant Harm
EEA	European Economic Area
EEE	Electrical and Electronic Equipment
EC	European Commission
EEE	Electrical and Electronic Equipment
ΕΜΠΑ	National Register of Producers (Greece)
ΕΣΔΑ	National Plan for Waste Management (Greece)
EOAN	Hellenic Recycling Agency
EPR	Extended Producer Responsibility
EU	European Union
EUGBS	European Union green bond standard
GBP	Green Bond Principles
ICMA	International Capital Market Association
LMA	Loan Market Association
NBH	National Bank of Hungary
NRDS	National Regional Development Strategy 2030 (Poland)
PROs	Producers Responsibility Organisations
SEZ	Special Economic Zone (Poland)
SRD	Strategy for Responsible Development (Poland)
RES	Renewable Energy Sources



RIS	Regional Innovation Scheme
WG	WEEE Generated
WP	Work Package
WEEE	Waste Electrical and Electronic Equipment

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1. Introduction

1.1. Aim and scope of Deliverable

Work package (WP) 3 on Documentation on regulatory and legal aspects pertaining to e-waste handling in RIS partnership countries aims to locate opportunities, needs and actors in WEEE recycling value chain in the Regional Innovation Scheme (RIS) partnership countries in scope of the WEEE Net project. This WP – among other tasks - analyses the RIS market in the WEEE value chain and sets the ground for a successful technology diffusion and matchmaking activity, tasks in other work packages. Furthermore, it proposes the involvement of the most relevant stakeholders in the implementation of regulations and their decisive role in the WEEE management process.

This document is one of the deliverables arising from A3.3.1. This activity defines the prerequisites and the enablers that could initiate and further develop a territorial WEEE recycling network. In particular, it aims to identify:

- a) national policies aiming to implement EU Directives on waste management,
- b) urban mining opportunities and motives to prevent illegal e-waste trading,
- c) regional and national funding schemes for green and circular economy,
- d) finance & taxation policies for recycling businesses, and
- e) models of territorial value chains that can kick-start recycling.

1.2 Approach / Methodology

The main methodology to find information for this deliverable was to hold interviews with industry actors who operate in the sector of EEE/WEEE in the RIS countries targeted. Initially surveys were prepared with the questions to be asked to the interviewees. The questions were sent to the interviewees ahead of the interview so they could prepare their answers if needed. After the online interview took place, the notes taken during the meeting were shared with the interviewee to make sure all information was correctly noted and there were no statements misunderstood.

In Annex I the list of organisations contacted for the interviews can be seen by country.

The information gathered was completed with desk research. Each individual country section has been assigned to the participating task members of the given country, and if there was no representative another project partner carried out the interview and the desk research.

2. Czech Republic

2.1. National legislation on e-waste

According to community standards, all EU countries must adhere to the stipulations of the 2012/19/EU Directive on Waste Electrical and Electronic Equipment (WEEE). Czech Republic has transposed the WEEE Directive into national law through a number of legislative bills, such as:

- The WEEE processing is standardized via CENELEC certification which will become obligatory for all WEEE processors/recyclers from 2023. (Act on End-of-life products No. 542/2020 Coll. § 69 art. 2 c) and Decree No. 16/2022 Coll. Annex No. 7 - List of CENELEC standards)
- Act. No.185/2001 Coll. on waste in division 8 - sections 37f-37o
- Decree No. 352/2005 Coll., on particulars of handling electrical and electronic equipment and waste electrical and electronic equipment and on the detailed conditions of financing their handling, as amended: o Decree No. 65/2010 Coll. o Decree No. 285/2010 Coll. o Decree No.158/2011 Coll.
- Decree No. 237/2002 Coll. on the details of the manner of take-back procedure of certain products.

EUR-Lex, the European Union repository of legislation lists up to 37 pieces of legislation dealing with the transposition of the WEEE Directive.

Two pieces of legislation that are worth highlighting are Act on End-of-life products No. 542/2020 Coll. § 69 art. 2 c) and Decree No. 16/2022 Coll. Annex No. 7 - List of CENELEC standards. The WEEE processing is standardized via CENELEC certification which will become obligatory for all WEEE processors/recyclers from 2023 thanks to them.

2.2 Prevention of illegal e-waste trading by financial and legislative measures

Inspection plans prepared by the authorities for recycling facilities

Monitoring, controls and inspections are within the responsibility of the Czech Environmental Inspectorates (CEI, 'Česká inspekce životního prostředí') with its 10 local inspection offices. Decree no. 352/2005 Coll Annex 7 article 3 indicates that WEEE treatment facilities are subject to monitoring by the Inspectorate, which scrutinizes those obligations regarding documentation, consumption of energy, consumption of water, measurement of noise emissions, quantity and

quality of emissions into the air in accordance with relevant regulations. Furthermore, the inspectorate investigates compliance with quantity and quality of waste, ground and surface waters in accordance with the environmental regulations. According to information from ASEKOL – one of the PROs operating in Czech Republic - every collective system has its own inspection plans to oversee the fulfilment of its legal obligations. Legal provision for mandatory audit of recyclers exist.

Returned electrical equipment is not considered waste, in the sense of the Waste Act, so the establishment of a collection point does not require a decision of the regional authority to collect waste in the sense of this act. The only requirement is to provide a space with sufficient capacity for the collection of returned electrical equipment.

Permitting procedures with conditions on how e-waste should be treated and reported

- Collectors and processors must receive official permit to be able to execute their function (permit from the Regional Office), incl. codes of waste/equipment which they are entitled to collect or process, necessary technology proved by certification and controlled by the Czech Environmental Inspectorate. They are also bound by contracts with the collective systems.
- According to Act on End-of-life products No. 542/2020 Coll. § 69 art. 2 c) and Decree No. 16/2022 Coll. Annex No. 7, Czech Republic has established a CENELEC standardized process for WEEE treatment. This process will become obligatory for all WEEE processors in 2023.
- Permits of collective systems require them to record and report the volume of items which are introduced to the market. The numbers are compared to the volume of WEEE collected and recycled. Both the collective system and contractual producers with the collective system are responsible to collect at least 65 % of electrical equipment introduced to the market and finance proper management of it.

Penalties for Illegal WEEE trading

Penalties are stipulated in Act No. 542/2020 Coll. (End-of-Life Products Act). Decree No. 16/2022 Coll. (Decree on the details of the disposal of certain products with an end-of-life) lists used electrical equipment which cannot be exported to third countries or imported to the EU/EEA as used equipment.

Inspection program to visit waste recycling, collection, and logistic facilities

The collective systems are obliged to execute audits of WEEE processors on one hand, also, the Czech Environmental Inspectorate oversees processors and collection points of their compliance with legislation, i.e., permits, records, marking of waste categories, etc. It is possible to raise a complaint to the Czech Environmental Inspectorate and initiate an inspection (e.g., municipalities or individuals).

Investigations of illegal actors

All waste management actors must possess official permits for collection or treatment of WEEE. Thus, illegal actors, are considered those who do not have necessary permits for WEEE management. Therefore, it is also the consumers' responsibility to dispose of the electrical equipment in the authorized collection point.

Interviews raised that the area which remains not sufficiently controlled is the import of new electrical equipment from third countries or EU/EEA by e-stores or directly to customers (freeriding). Even though importers/producers are obliged to register themselves, pay a charge for recycling of each item sold, the compliance with this obligation is currently not enforced by any official body. Consequently, the recycling fee remain often unpaid and is covered by compliant producers officially registered, which increases the financial responsibility of compliant producers and creates market distortions.

Interviews also highlight that WEEE coming from businesses is not sufficiently controlled, authorities do not verify that WEEE arising from professional activities are disposed of at official collection points neither if the waste is correctly processed in authorised facilities.

Information campaigns on selective waste disposal, and on illegal actors

Collective systems are mandated by law to provide financial means for running informative and awareness raising campaigns. Decree No. 16/2022 Coll. (Decree on the details of the disposal of certain products with an end-of-life) stipulates the requirements for the for awareness-raising campaigns: “§ 2 Art. 5 The extent to which information campaigns are conducted in a given year must correspond to at least 2% of the total costs incurred in fulfilling the obligations laid down by law for the take-back, treatment, recovery and disposal of end-of-life products, informing the end user about take-back and other related obligations.”

Public registers for recyclers and waste collectors

Different registries exist in the Czech Republic where actors of the WEEE value chain are registered and listed. The majority of the lists of registers is on the ISOH website. The ISOH Waste Management Information System is a comprehensive and nationwide database information system containing data reported pursuant to Act No. 185/2001 Coll., on Waste and on Amendments to Some Other Acts, Act No. 541/2020 Coll., on Waste and Act No. 477/2001 Coll., on Packaging and on Amendments to Some Acts, as amended. The following registers can be found on the ISOH website:

- Producers of electric equipment: <https://isoh.mzp.cz/WebElektro/>
- The register of collection/take-back points: <https://isoh.mzp.cz/registrmistelektro/>
- “The Public Information System of Waste Management (VISOH), which makes available aggregated data on waste production and management in the basic territorial division of the Czech Republic in two modules (Module 1 from 2002 to 2008 and Module 2 from 2009 to the present), serves primarily the professional public with orientation in the applicable legislation in the field of waste management, <https://isoh.mzp.cz/visoh>
- the Motor Vehicle Scrap Module (MA ISOH), which includes the MA ISOH Public Facilities Directory, which lists the collection and treatment facilities with valid approval to operate, <https://autovraky.mzp.cz/autovrak/>
- Register of facilities, traders and files, which provides up-to-date information on waste management facilities operated according to Act No. 185/2001 Coll. and from 1 January 2021 also Act No. 541/2020 Coll, <https://isoh.mzp.cz/RegistrZarizeni/Main/Mapa>
- List of carriers, which contains information on waste carriers who are not also the person authorised to take possession of the waste pursuant to Article 13(2) of Act No 541/2020 Coll. <https://visoh2.mzp.cz/Dopravci/Dopravci>
- List of waste brokers within the meaning of Section 128 of Act No. 541/2020 Coll., on Waste (hereinafter referred to as the "Waste Act") provides information on waste brokers pursuant to Section 45 of the Act. Intermediaries arrange for the recovery or disposal of waste on behalf of other persons, including where the intermediary does not have physical possession of the waste. <https://visoh2.mzp.cz/Zprostredkovatele/Zprostredkovatele>
- The register of warehouses at the generator in its public part within the meaning of Section 128 of Act No 541/2020 Coll., on Waste (hereinafter referred to as the Waste Act) provides up-to-date information on the operation of the type 12 facility listed in Annex 4 of the Act pursuant to Section 21(3).” <https://isoh.mzp.cz/RegistrSkladu/Main/Mapa>

There is a public list of issued authorisations to operate a collective scheme for electrical equipment made public on the Ministry of Environment: https://www.mzp.cz/cz/kolektivni_systemy_oeez

Banning cash transactions at recycling facilities

Interviews confirm that nowadays, it is possible to pay in cash for buyout of e-waste in the Czech Republic. The only exception are wires and vehicles, for which it must be paid by non-cash transaction as stipulated in the Act No. 541/2020 Coll. Waste Act stipulates in § 19 “(2) The operator of a facility shall not provide payment for the acceptance of metallic wastes specified by the Ministry's decree from non-business individuals. (3) The operator of a facility may only provide payment for the acceptance of metallic waste specified in the Ministerial Decree by transferring funds through a person authorised to provide payment services or through a postal service operator by postal order. He shall keep records of the payments made.”

Use of other collection channels

- Curb side (formal and/or informal) – Not aware of any such activities.
- Door-to-door campaigns to ensure proper disposal of the e-waste. There were a few experiments with this type of collection channels in the past, yet they have not proven efficient.

Alliances between municipal and private entities for proper collection of WEEE and information to citizens

On the websites of Czech collective schemes such as ASEKOL and ELECTROWIN, there is reference of collaborations between municipalities and private companies with PROs for the development of collection points and collection yards. Cooperation between municipalities is intended for cities and municipalities that provide a system of collection and sorting of municipal waste through a collection yard and therefore can set aside a fix collection point on their territory, where the take-back of electrical equipment can be carried out.

ASEKOL, one of the country's collective systems, cooperates with 70 % of municipalities for collection of WEEE.

According to Act No. 542/2020 Coll. End-of-Life Products Act, at least one collection point must be established in every municipality (or urban district) with more than 2,000 inhabitants.

There is currently 1 public collection point per 350 inhabitants (incl. a total of 30 105 collection points and collection containers) not counting the private collection points (13 815). Including the private collection points there is a collection point for every 240 citizen.

National strategic plan to recover critical raw materials from WEEE

There is an updated secondary raw materials policy for the period 2019-2022::

<https://www.mpo.cz/assets/cz/prumysl/politika-druhotnych-surovin-cr/2019/8/Politika-druhotnych-surovin-CR.pdf>

2.3 Regional and national funding schemes for green and circular economy

The national funding programs which address the issues of waste/materials and which support circular economy are implemented within the ESIF – Operational Programme for Environment, having currently open these topics:

- Construction and modernisation of collection yards
- Construction and modernisation of waste material recovery facilities
- RE-USE centres for product re-use, including activities for product repair and life extension

The list of calls is available in the following link: <https://opzp.cz/dokument/3036>

The general support for innovations in companies is implemented via ESIF – National Recovery Plan (under the gestion of the Ministry of Industry and Trade). The calls for which may be applicable to companies also in waste management sector (but not exclusively) are the following:

- Support for digitalization, automation and robotization of production processes
- Introducing a product innovation, process innovation (i.e., a production or service delivery process) or organisational innovation

The list of open calls is available at the following link:

<https://www.brizy.cloud/customfile/bd630b3b2c02835ad1e2547bcfc2d05d.xlsx>

There was a funding programme set up by the Technology Agency of the Czech Republic (finished in 2014) with the aim to develop and apply new procedures, processes, equipment and technologies for recycling, separation and refining of precious metals (indium, gallium, ...) from secondary raw materials of the electronic and photovoltaic industry. For more information please see the following link: <https://starfos.tacr.cz/cs/project/TA01010353>

From the InterReg funding programme, the project called REEGain was dedicated to Sustainable biological recycling of environmentally problematic substances (rare earth elements) from electronic waste and water. The project finished in June 2022. For more information please follow

this link: <https://www.avcr.cz/cs/veda-a-vyzkum/biologie-a-lekarske-vedy/Vedci-vyuzivaji-rasy-k-recyklaci-vzacnych-kovu/>

Collaboration models between the country collection schemes and municipalities and private companies for setting collection points and collection yards imply the reduction of municipal costs for waste disposal, free removal of WEEE from the collection point, free processing of WEEE collected as part of cooperation, free rental of collection containers for storing WEEE and use of informative and training materials. It is the responsibility of collective systems to promote separate collection and to organise awareness- raising campaigns.

2.4 Finance & taxation policies for recycling businesses

Landfilling taxes

According to Section 45(1) of the Waste Act, the waste generator is obliged to pay a charge for landfilling, and, according to Section 46(1) of the Waste Act, for the landfilling of hazardous waste, the waste generator is obliged to pay, in addition to the base component of the charge (CZK 500/t), also the so-called risk component fee (CZK 4,500/t).

The Waste Act No. 541/2020 Coll. Section 103 (Part 5) stipulates:

“The payer of the fee for depositing waste at the landfill is:

- a) the person who loses the ownership right to the waste when it is handed over for disposal at a landfill,
- b) the municipality, if it is the originator of the deposited municipal waste, or
- c) landfill operator, if
 1. deposited waste at a landfill operated by him, or
 2. designated the waste when it was deposited at the landfill as a technological material for the technical security of the landfill.”

Section 104 stipulates

“(1) The subject of the fee for the disposal of waste at a landfill is the disposal of waste at an individual landfill within the first phase of its operation.

(2) In the case of depositing waste at a landfill within the first phase of its operation determined by the landfill operator, when it is deposited as a technological material for the technical security of the landfill, the landfill operator becomes liable for a fee.”

According to the Czech National Waste Management Plan 2015-2024, landfilling of recyclable, recoverable and mixed municipal waste will be restricted by 2024.

Penalties for wrong disposal

There are penalties set by Waste Act, where section 66 states the following:

PENALTIES FOR OFFENCES BY LEGAL PERSONS AND NATURAL PERSONS ENGAGED IN BUSINESS

(8) The offence shall be punishable by a fine not exceeding:

- CZK 10 000 000 if the offence is an offence under paragraph 3,
 - (3) A legal or natural person commits an offence by
 - (a) failing to classify waste in accordance with the Waste Catalogue,
 - (b) transfers waste to a person who is not authorised to receive the transferred waste under this Act,
 - (c) accepts waste although he or she is not authorised to accept it under this Act,
 - (d) operates a facility for the recovery or disposal of waste without the necessary consent of the competent administrative authority or in contravention thereof, or operates a facility for the recovery or disposal of waste in contravention of the approved operating rules of the facility,
 - (e) operates a waste collection or collection facility without the necessary consent of, or in contravention of, the competent administrative authority or operates a waste collection or collection facility in contravention of the approved operating rules of the facility,
 - (f) fails to keep records of PCBs, PCB waste and equipment containing PCBs and subject to registration to the extent required,
 - (g) fails to ensure the take-back of used products intended for take-back or to fulfil any other obligation related to take-back,
 - (h) fails to appoint a waste manager under the conditions laid down in this Act,
 - (i) issues a certificate of exclusion of hazardous properties for waste for which it is responsible as a producer or authorised person, or assesses hazardous properties for which it has not been authorised to assess; or
 - (j) fails to decontaminate or remove the equipment referred to in section 27(1) by 31 December 2010,
- CZK 5 000 000 if the offence is an offence under paragraph 4.
 - (4) A legal or natural person shall commit an offence by



- (a) classifying waste referred to in section 6(1)(a), (b) or (c) as other waste or treating such waste as other waste without having a certificate from an authorised person under section 9 that the waste does not have hazardous properties,
- (b) handles waste in facilities where waste management is prohibited or not permitted,
- (c) dilutes or mixes waste to meet the criteria for acceptance at a landfill or mixes hazardous waste with each other or with other waste without the consent of the competent administrative authority,
- (d) handles hazardous waste without or contrary to the necessary consent of the competent administrative authority,
- (e) disposes of waste in a landfill which is prohibited by this Act or the implementing legislation from being disposed of in a landfill, or fails to comply with the conditions laid down in the implementing legislation when disposing of waste in a landfill,
- (f) fails to comply with the obligations laid down by this Act in the management of selected products or waste or equipment under Part Four,
- (g) in the case of transboundary shipments of waste, breaches an obligation laid down in directly applicable European Community legislation on shipments of waste³⁹ or Regulation (EU) 2017/852 of the European Parliament and of the Council or fails to comply with the conditions laid down in a decision of the Minister
- (h) handles POPs waste in contravention of directly applicable European Community legislation on POPs^{30a}) or does not keep records of POPs waste or does not report data pursuant to Section 39(8),
- (i) ensures the joint fulfilment of the obligations of producers or obliged persons for which an authorisation to operate a collective scheme is required pursuant to § 31l or 38c, without such authorisation, or without an authorisation to operate a collective scheme offers to third parties the conclusion of contracts the content of which is the activity for the performance of which an authorisation is required,
- (j) as a scheme operator under section 31l or 38c, breaches any obligation imposed on a scheme operator by this Act,
- (k) provisionally stores waste mercury in breach of Article 13(1) of Regulation (EU) 2017/852 of the European Parliament and of the Council; or
- (l) permanently disposes of waste mercury in contravention of Article 13(3) of Regulation (EU) 2017/852 of the European Parliament and of the Council.

PENALTIES FOR OFFENCES BY NATURAL PERSONS (§ 69 Decree) –

- a landfill or depositing waste outside designated places.
- Up to CZK 1,000,000 if a natural person commits an offence by (a) taking possession of waste, (b) transports waste in contravention of directly applicable European Community

legislation on shipments of waste³⁹) or Regulation (EU) 2017/852 of the European Parliament and of the Council or carries out a transboundary shipment of waste in contravention of a permit, (c) concentrates or otherwise handles waste on sites or premises which are not waste management facilities under this Act or leases those sites or premises to another person for the purpose of concentration or other waste management.

Penalties for theft or scavenging of WEEE

As the WEEE is considered property, the theft of WEEE is punishable under the Criminal Code (Act No. 40/2009 Coll. Criminal Code Act OFFENCES AGAINST PROPERTY § 205).

The Ministry of Interior released a Strategy for the prevention and combating of crime¹ related to waste for the period 2021 – 2023, which, nonetheless, covers the whole waste area, and there is no specific targeting at WEEE, and it does not include specific data on illegal waste treatment.

There is no tax reduction for recyclers investing or setting up new plants/facilities. Interviews confirmed that there are no known subsidies for buying refurbished products, and there are no reduced taxes offered for prepare for re-use organisations.

2.5 Models of territorial value chains that can kick-start recycling

Consumer campaigns

The obligation to make awareness- raising campaigns stems from the Decree No. 16/2022 Coll. In the followings a list of consumer campaigns are listed which have been implemented by different collective systems such as ASEKOL, Elektrowin, REMA with the aim to promote separate collection and recycling

- [Crown Per Kilo](#)
- [Red Bag](#)

¹ <https://www.mvcr.cz/soubor/strategie-prevence-a-potirani-trestne-cinnosti-souvisejici-s-odpady-na-obdobi-let-2021-2023.aspx>



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- [Active Community](#)
 - [Donate a cell phone](#)
 - [Electric Debris](#)
 - [Museum piece](#)
 - [Recycle with firefighters](#)
 - [Recycling Play](#)
 - [Mobiles for gorillas](#)
 - [Smart recycling](#)

3. Greece

3.1. National legislation on e-waste

According to community standards, all EU countries must adhere to the stipulations of the 2012/19/EU Directive on Waste Electrical and Electronic Equipment (WEEE). Greece implemented the 2002 Directive through the Presidential Decree No. 117 on alternative management of WEEE and its amendment through Presidential Decree No. 15, which together account for the measures, terms and programmes in place for the alternative management of waste electrical and electronic equipment, in line with the provisions of the 2002 Directive. The 2012 Directive has been transposed through the Ministerial Decision of 9th May 2014 No. 23615/651/E103/2014.16 which is currently the active WEEE legislative framework together with the Law 2939/2011 and its amendment (Law 4496/2017) regarding the “Packaging and alternative management of packages and other products”.

3.2 Prevention of illegal e-waste trading by financial and legislative measures

Inspection plans prepared by the authorities for treatment facilities

Facilities in contract with the two authorised PROs in the country are audited according to the CENELEC/WEEELABEX standards due to the PROs internal policies. Licensed companies are inspected by the regional authorities only when there is a major change implemented to the permit. Currently 7 treatment operators are in contractual relationship with PROs, which are all certified according to the CENELEC/WEEELABEX standards, and more operators have already initiated the WEEELABEX certification process. Not all companies are aware of the inspection plans because they rarely occur and never on a regular basis. Inspections are mostly concerned with safety issues. In Legislation 4819 article 61 about inspections in recycling facilities, there is no specific direction concerning the temporality of inspections. Inspections by ministerial actors except for PROS's might take place but according to interviewees, they rarely do. Licensed companies supervised by the PRO Appliances Recycling SA are inspected twice a year and by the other PRO, Fotokiklosi, once a year.

Permitting procedures with conditions on how e-waste should be treated and reported

As the national environmental legislation mandates (Law 4014/2011), companies that are active in waste management need to obtain an environmental permit, as also an operational permit if applicable, in order to be able to act legally. Dependent on the activities that take place (storage, manual dismantling, mechanical dismantling – separation) are classified into different categories according to the index of M.D. 37674/2016. There are two types of environmental permits according to the environmental legislation taking account of the extent of the activities: a) Environmental Conditions Approval Decisions - Cat. A1 and Cat. A2 for moderate-higher risk operations that require the submission of an analytical Environmental Impact Assessment Study and the written opinion of several agencies and b) Standard Environmental Commitments – Cat. B for lower risk operations that require less information and time to be issued.

As regards the treatment and preparation for reuse activities, if they are classified to category A1 & A2 the permitting authorities enforce WEEE specific environmental terms that are included in the body of the permit. They also have more, in terms of total number, obligations instead of permits classified to cat. B (e.g., submit an amendment study for each important change of their activities). For treatment activities that are classified as category B., the permit that is issued is significantly shorter and there are no WEEE specific environmental terms included, only general waste management terms. Considering that an operator who treats mechanically less than 15 000 tons/year WEEE is licensed under cat. B, the above-mentioned lack of WEEE specific terms can create a non-homogeneous permitting situation. All WEEE treatment operations must follow Best Available Techniques (BATs) according to the legislation.

WEEE collection and storage activities must also be licensed under the same environmental permitting framework which includes facilities that receive directly WEEE from the waste producers (e.g., citizens) as well as those that receive WEEE from other waste management transporters (e.g., scrap dealer facilities, Intermediate Storage Areas). Regardless of whether the activities are licensed under category A2 or B, basic specific environmental terms are applied by the authorities (e.g., impermeable surfaces, prohibit of WEEE treatment). The main problem that still exists is that most of the permits lack the reference of all the required EWC codes that apply to WEEE, so mismatches occur in between WEEE management actors.

In general, the contracts between PROs and WEEE management actors include a complete set of WEEE specific terms and obligations for each contracting activity as regards handling, shipment, treatment and reporting.

Collections points that are meant to be installed in places where only a citizen can have direct access to dispose the appliances (e.g., waste bins in supermarkets and other retail stores), do not require an environmental permit.

PROs too must get a license from the relevant authority, which is Hellenic Recycling Agency (E.O.AN.) that operates under the Ministry of Energy and Environment. According to the license and the national legislation PRO's must annually report financial and technical information such as number of producers that have joined the scheme, WEEE collection achieved, number and spatial distribution of collection points/sources, logistics, recycle & recovery rates etc.

PROs classify WEEE in 6 categories, however recycling companies contracted with Appliances Recycling SA - one of the two PROs operating in Greece - are supposed to classify their products in 64 sub-categories, which is, according to the recycling plants, problematic and time consuming. Recycling companies contracted with Fotokiklosi are supposed to classify their products in 6 categories.

Penalties for illegal WEEE trading

As indicated by Law 4819, depending on the severity of the crime, sanctions vary from imprisonment of 180 days and financial penalties. However, this is rarely implemented in practice, according to a recycling facility in Greece interviewed for this deliverable.

Penalties for scavenging could be applied after an inspection of the relevant Environmental Inspection Authority but these inspections rarely take place as there are not many inspectors available and most of the times they do not have the appropriate training in order to identify specific bad practices related to WEEE that may take place.

Investigation of Illegal actors

There is no information of an existence of a plan for investigation of illegal actors. However in Greece all legitimate waste management actors have to report their annual managed waste quantities through an electronic platform, the Electronic Waste Registry that operates since 2017. This reporting and mapping platform can provide very useful information for the authorities in order to contribute to the quicker identification of actors that may be acting in a non-legal framework.

An online platform also exists (www.diavgeia.gr) that every authorities decision and permit is uploaded and publicly available for everyone in order to achieve full transparency. This is another tool that helps the investigation of illegal actors in Greece.

Information campaigns on proper selective waste disposal, and on illegal actors

Fotokiklosi and Appliances Recycling (the country's official two PROs) regularly organize awareness campaigns. E-waste day is an example of them others are information campaigns with schools, provision of informative material etc. Furthermore, local authorities often cooperate with the PROs to engage in awareness-raising actions. Both PROs websites contain information for consumers about the correct disposal of WEEE and where to locate collection points.

Public registers for producers, recyclers and waste collectors

According to art 84 of law 4819, there is a public registry for producers, the National Register of Producers (Ε.Μ.Π.Α) in order to report the put-on-the-market WEEE quantities. The Hellenic Recycling Agency (EOAN) has a dedicated section to the Register, with information for potential recyclers and collectors. Licensed actors are available online.

As stated before the Electronic Waste Registry (Η.Μ.Α.) provides the tool so the registered waste management actors can report the collected, transported, stored and treated waste quantities to the ministry of environment.

Banning cash transactions at recyclers

In general, all cash transactions, regardless of waste or products, are banned for above 500 euro in Greece for all industrial sectors. No specific regulation exists for WEEE. Cash is mostly used for transactions with scrap dealers to buy WEEE from their sources.

Use of other collection channels

Curbside (formal/informal): According to interviews conducted , curb-side collection is among the 20% of volume, which is not collected by scrap dealers. 19,5% is collected with B2B processes while the rest is collected by municipalities. It must be noted that this percentage is annually increasing (on 2022 the share increased to 50% mostly because of the long-term commercial strategy of the PROs as well as the implementation of the EU funded program “Recycling-Replace Appliances”) Door-to-door campaigns to ensure proper disposal of e-waste are organised occasionally but not very often.

3.3 Regional and national funding schemes for green and circular economy

According to the National Plan for Waste Management (ΕΣΔΑ), there is a strategy that involves municipalities setting up mobile or stationary WEEE collection points. In small municipalities collection points are mobile, while for bigger municipalities collection points are stationary. Currently there is no information regarding the funding party of the scheme.

Concerning entrepreneurship stimulation initiatives and policies, national funding opportunities have been set up for building new recycling plants, as well as funding of infrastructural upgrades, especially for those plants that are in the Greek peripheries. However, there is no specific legal stipulation about WEEE, and all measures fall within the recycling sector in general.

Occasionally, the Greek government subsidizes consumers for returning their old household devices and buying new -more energy efficient- ones (aids under EC Regulation - No 651/2014 regarding replacement of old appliances by new-energy efficient appliances).

Funds are also available from the European Union. PROs are some of the beneficiaries of calls for proposal for these WEEE related EU funds. A very good example are two EU funded LIFE projects called [Infocycle](#) and [Reweee](#) that were coordinated by Appliances Recycling. LIFE Infocycle's goal was to raise the level of awareness for good practices of WEEE management targeting actors that work in the field of WEEE management as also the public. For that on-site trainings took place for companies and municipalities that were active in the above-mentioned activities; conferences, collection and information events were organized in key point cities and training materials were developed for employees that work in the WEEE management sector and more specifically regarding collection, storage, transportation and treatment activities. The context of the training materials was in accordance with the WEEELABEX standards on treatment and collection & logistics (now CENELEC standards). The training materials are available in form of videos, working instructions, handbooks and presentations. The training videos are in Greek, with and with subtitles in English, and dubbed to english. The videos and training material can be downloaded from the project website and are also available on [YouTube](#).

LIFE Reweee's goal was to promote WEEE prevention and preparing for reuse in Greece, by developing proper infrastructures, an integrated methodology for the quantification and reporting of electrical and electronic equipment (EEE) reuse and preparing for reuse, as well as the implementation of dissemination and raising public awareness action. The main [objective](#) of the project involved the design, construction, and operation of [two WEEE Sorting Centres](#) (SCs), for the first time in Greece, in the wider region of the Attica prefecture by ECORESET S.A, and the Central Macedonia (Oraikastro) prefecture by HERMES P.C. The core activity of these SCs is to provide the ground for sorting and preparing for reuse discarded repairable WEEE, offering a new, more sustainable alternative approach of WEEE management. Amongst others the program developed a web-based platform for exchange and donation of EEE; organized "repair events" open to the

public; developed [technical requirements](#) for WEEE management and provided repair guides for [electronic](#) and [small electrical appliances](#).

3.4 Finance & taxation policies for recycling businesses

Landfilling taxes

According to CMD/MENV/ΔΔΑ/81492/1650, landfilling taxes exist but are considered particularly low. Hence, there is very little incentive for recycling. Landfilling taxes exist also for municipalities that pay the state taxes for every ton of waste landfilled when the permitted levels are surpassed.

Landfill tax was introduced originally in 2014, it was repealed and replaced in 2019 by a Circular Economy Levy starting at 10€/t. From January 2020 the tax was 10€/t and from 2021 the landfill tax would be increased annually by 5€/year up to 35€/t.

Subsidies for digitizing shipments and reporting

According to the National Plan for Waste Management there are grants available to recycling companies (regardless of recycling material expertise), for the digitalization of their operations. In general, some actors of the recycling industry already use some kind of e-technology for reporting, invoicing or shipment monitoring.

Taxes for recovering or handling hazardous waste -e.g., CFC

According to interviewees, in Greece there are no licensed hazardous waste landfills. All hazardous waste is exported to other EU countries. High costs for exporting hazardous waste in other EU countries are paid by the recycling companies. Companies dealing with waste that are not licensed, illicit actors, dispose for free of hazardous waste in illegal channels.

Penalties for wrong disposal

Depending on the severity of the crime, sanctions vary from imprisonment of 180 days and financial penalties. However, this is rarely implemented in practice.

3.5 Models of territorial value chains that can kick-start recycling

Interviews conclude that cooperation between recyclers and PROs works well, even though that the process, according to the recyclers, is particularly bureaucratic and time-consuming. Nevertheless, practices are transparent. Furthermore, operations dealing with non household waste perform well.

Specific targeted commercial policies when implemented by the PROs can provide good results. Air conditioners for instance arrive almost intact by scrap dealers to the recycling plants, as PROs pay high price to minimise scavenging.

High quality and quantity of WEEE collected could be achieved with the implementation of programs that require the involvement and cooperation of many actors such as citizens, Retailers, WEEE management companies and the relevant authorities. An example of such an EU funded program “Recycling-Replace Appliances” begun in 2022 and gave incentives to citizens to return their high energy consuming equipment (fridges, freezers, and air condition units). This dramatically increased the annual collected amount and maximized the benefit for all engaged stakeholders. Similar programs for other types of WEEE (Boilers, PV panels) are to be also implemented in 2023.

A larger network of municipal collection points could improve the quantity and quality of the WEEE collected. As there is an existent legislative framework for the development of “Green Collection Points”, in practice the contribution of municipalities to the WEEE collection chain is very low.

The development of door-to-door WEEE collection services could also improve the WEEE collection level. In Greece there are companies that are active in this type of business but a door-to-door activity that operates under a municipality could provide citizens a higher level of trust to dispose their WEEE.

A simpler and more unified and equal permitting framework could provide the WEEE management actors with a transparent environment and could create the level of trust required for the companies to invest in new facilities and technologies.

4. Hungary

4.1 National legislation on e-waste

In Hungary, the current version of the WEEE directive valid for EU member states entered into force on August 12, 2012, under the name 2012/19/EU. Most of the changes were enforced by Hungarian legislation from January 1, 2018.

The EU legislation defines the amount of waste to be collected uniformly at 65% of average of the amount placed on the market in the previous 3 years. At the same time, some member countries, including Hungary, were subject to extended deadlines for meeting the targets, the collection target is set on 40-45% of the amount placed on the market by August 14, 2021. The following legislations regulate the WEEE related issues in Hungary:

- Law LXXXV of 2011 provides for the obligations related to the waste of electrical and electronic equipment.
- Government Decree 343/2011 (XII.29), amended by Act CXXXI of 2017, provides for the environmental protection product fee.
- Law on the implementation of Act LXXXV of 2011 on the environmental protection product fee,
- Government decree 197/2014. (VIII. 1.) on the management of e-waste provides for waste management activities related to electrical and electronic equipment
- Government decree 443/2013. (XI.27.) provides for metal trade activities
- Government Decree 385/2014 (XII. 31.) on residential waste transport, detailing the conditions for the provision of waste management public services for the selection of waste transported from the citizens, its recycling, and the operation of waste yards.

Manufacturers of electronic devices are related to the recycling of waste generated from their products in order to fulfil their obligations, they are obliged to pay a product fee. The amount of money received is tendered by the Ministry of Innovation and Technology within the framework of the public procurement procedure in order to promote selective waste collection and recycling.

Manufacturers can fulfil their obligations related to waste collection and recycling by registering with NAV (National Tax and Customs Office). The decree also contains obligations for retailers: distributors of electrical equipment are obliged to take back used or end of life WEEE. When buying

a new device, the distributor must encourage the return of the unused device by giving a purchase voucher. The minimum value of the purchase voucher is regulated by Annex I of Government Order 197/2014. (VIII.11.) within a value limit of HUF 100-1000.

4.2 Prevention of illegal e-waste trading by financial and legislative measures

Permitting procedures with conditions on how e-waste should be treated and reported

In Hungary, WEEE falls under the scope of the Metals Trade Act, according to which companies dealing with WEEE must participate in a separate licensing procedure, which requires the existence of an environmental permit and the designation of storage locations. One of the conditions for granting a license is a financial cover/deposit (HUF 5,000,000). After obtaining the permit, a daily report must be sent to the tax authority, who can unexpectedly check the veracity of the reported data, the regularity of its storage and whether the type of waste treated is in the scope of the license.

Penalties for illegal WEEE trading

A financial measure used is the fine imposed on illegally taken waste, which depends on the type and amount of waste, and can sometimes be in the order of millions of HUF. If the handover is caught in the act, or the person who gave it over can be identified, the fine applies to both parties – the person selling the WEEE and the buyer as well (the fine is not halved, both parties must pay the full amount of the fine).

Inspection program to visit waste recycling, collection, and logistic facilities

The disadvantage is that only the registered recipients of waste are checked in this way, but all metal and WEEE dealers and recyclers are forced to follow this procedure.

Illegal traders can be caught in the act on the basis of a complaint - possibly if the control authority (National Tax and Customs Office (NAV), Environmental Protection Authority) identifies them based on internet advertisements.

Promotion of training for repairs

APPLiA Hungary (trade association of home appliances industry) in recent years have developed a new, modern curriculum for vocational training for the education of the profession of »home appliance repair technician«. The course consists of both theoretical and practical training and has been included in the Hungarian National Training Register (OKJ). The focus of the repair operations is on troubleshooting and problem solving, emphasis have been placed on students acquiring business, environmental and legal knowledge, as well as learning to communicate with customers. There was also a technical book developed titled: Professional training of household appliances technician. The book has been translated to Slovak, Czech and English languages as well. This is the 4th year that this training is running and have been completed by many new professionals in Hungary, but the book is also used to train professionals in the Czech Republic and Slovakia since 2021-22.

Other measures to promote the prevention of illegal trade

There are so called purchase vouchers that the retailers give to the person returning their used appliances. The value of the purchase vouchers is between HUF 100-1000. The value is similar to what an illegal buyer of e-waste is willing to pay for such WEEE.

By increasing the value of shopping vouchers - a legislative amendment - people could be encouraged to send WEEE to a legal collector.

4.3 Regional and national funding schemes for green and circular economy

The European Green Deal underlined the need to better direct financial and capital flows to green investments. The European Green Deal investment plan announced that the Commission would establish an EU green bond standard (EUGBS).

Green bonds play an increasingly important role in financing assets needed for the low-carbon transition. However, there is no official green bond standard within the EU. Establishing such a standard was a recommendation in the final report of the Commission's High-Level Expert Group on sustainable finance.

In order to ensure comparability and proper identification of sustainability goals, taxonomies have been established within the framework of international standards, which define all economic activities that are acceptable under the sustainability goals of the Green Bond Standards.

The Climate Bond Initiative (CBI) was the first to create its Taxonomy in 2013, which identifies 8 economic sectors as sustainability-acceptable areas. Related to this are the ever-expanding sector criteria, which describe in detail which technical criteria each economic activity can be considered as eligible for green bond financing purposes. International Capital Market Association (ICMA) has

not established a separate Taxonomy, and based on the five sustainability goals of the Green Bond Principles (GBP) standard, ten economic sectors have been identified that are considered acceptable for implementing green bond projects. The detailed adequacy of the projects to be implemented designated by the issuers shall be verified in the context of the external rating. In June 2021, the European Union adopted the first major detailed regulation of the EU Taxonomy Regulation on sustainable economic activities, the Climate Delegated Act covering climate change mitigation and adaptation ('EU Taxonomy'), which serves as the basis for broader sustainable finance (including bonds and other forms of financing) in order to accurately identify sustainable finance opportunities.

The EU Taxonomy contains a whole set of detailed criteria for the widest possible touch on economic activities, taking into account a number of sustainability aspects, as well as social/social aspects, and the Do No Significant Harm ('DNSH'), according to which an activity can only be considered sustainable if, in addition to contributing substantially to green objectives, it is not harmful from other sustainability perspectives. International Green Bond Standards were established to ensure comparability of sustainability goals, transparency of proper use of funds and sustainability expectations of investors. In 2014, the ICMA established its green bond standard, which is a kind of voluntary minimum on the part of issuers. The 4 main components of the GBP, which constitute the Green Bond Framework, ensure that the funds raised from the Green Bond are used for the appropriate purposes:

- Use of Proceeds: defining the scope of green project objectives
- Project Evaluation and Selection: description of the areas responsible, evaluation criteria and decision-making process
- Management of Proceeds: the process of managing and recording selected projects and used funds
- Reporting related to resource use and green targets: after issuance, the adequacy of projects implemented from the bond source and their environmental impact are presented in the Allocation, Eligibility & Impact Reporting.

Compliance with the standards can be demonstrated through an authentication system relying on independent third-party qualifiers, which includes a potential external audit of the Green Framework. Similarly, the GBP contains only voluntary requirements for the verification of post-release reports (pre- & post-issuance verification).

The National Bank of Hungary (NBH) has launched a Green Program to support financial services in Hungary aimed at preserving the environment. The Green Program announced by the Central Bank

serves to reduce risks related to climate change and other environmental problems, to expand green financial services in Hungary, and to broaden the related knowledge base in Hungary and internationally (NBH Recommendation 5/2021 (IV.15) on climate change-related and environmental risks and the mainstreaming of environmental sustainability aspects sets out additional expectations for the activities of credit institutions). In developing the Framework, it took into account all the objectives set out in the Hungarian legal and strategic documents and where the Bank's mission was in line with the development direction it had set.

The NBH is committed to promoting the spread of sustainable finance, so it has created the Corporate and Municipal Green Capital Requirement Discount Framework to facilitate green bond issuances in Hungary. Green bonds differ from traditional bonds primarily in that they specifically finance investments that have some direct or indirect environmental or climate protection benefit. Under international standards for green bonds, funds from green bonds can only be used to partially or fully finance or refinance new or existing green projects that meet the criteria set of standards. In practice, this means that green bond funds are limited in their usability and can be used for sustainability purposes defined in the respective standards. In order to ensure sustainable goals, as opposed to a conventional issue, a green bond issue requires additional documentation to determine sustainable use goals prior to the issuance of the bond and to demonstrate the appropriate use of resources and the impact of environmental goals after issuance. The Eximbank decided to develop a Green Finance Framework (Framework) in line with international and Hungarian regulations as the basis for its sustainability financing program in 2021. The Framework defines the eligible green loan targets, the assessment and selection of eligible projects, the rules for the use of funding sources, and the content of annual public reporting on placements under the terms of the Framework, in accordance with the Loan Market Association (LMA) Green Loan Principles. When the Framework was developed, Eximbank also took into account the set of rules developed by international development banks for sustainable financing. When the Framework was developed, Eximbank sought to create Green Finance Programs to complement the goals set in the Hungarian climate strategies and the related support programs, thus encouraging the development of Hungarian enterprises to fulfill sustainability goals.

4.4 Finance & taxation policies for recycling businesses

Landfill tax

The amount of the landfill contribution is a several magnitudes higher than that of the acceptance price of the waste (6,000 HUF/t), which discourages people from taking the waste to the landfill sites, since this amount does not have to be paid when it is handed over to a recycling plant.

The landfill tax has been introduced in 2013. Fee started at 6,000 HUF/t for municipal waste (19.35€) in 2013, it was planned to be raised yearly to reach a maximum of 12,000 HUF/t (38.7 €) in 2016 but this was not implemented and the prices remained at 6,000 HUF/t in 2016. In 2021, the fee was still 6,000 HUF/t (19.35€).

4.5 Models of territorial value chains that can kick-start recycling

National best practices promoting recycling

In Hungary, the majority of households have a collection container for selectively collected waste, which is collected in a container of a different colour from municipal waste and collected with a collection route organized for a different day. This does not yet cover WEEE at the household level, but every household can order "waste removal" from the public service provider - this is provided free of charge 2 times a year - when all types of waste generated in the household (except hazardous waste) are transported.

Consumer campaigns

Consumer campaigns in Hungary are organized by "green" organizations (NGOs) but the Hungarian government is also quite active in organising awareness raising campaigns. One example of such programs where different kinds of organisations are involved is the Sustainability [Theme Week](#), where issues related to environmental consciousness are embraced. Around every issue a series of activities are organised for schools. The main themes of the 2023 Sustainability Theme Week are biodiversity, sustainable values and energy. In addition to these, waste also appears as a permanent topic. Teachers are recommended to educate students in the specified topics with the help of thematic lesson plans and sample projects developed for three age groups (lower grade, upper grade, high school).

Based on the sample projects, teachers more experienced in the pedagogy of sustainability can develop their own weekly project plan related to the Theme Week. In addition to these, lesson plans and sample projects from previous years can also be selected.

The study materials are available online, in downloadable form on this website, and are printed locally at the school. For preparation, the teaching packages that help the processing of individual topics are also available to the teachers, which contain the related lesson plans, sample projects, digital applications, online classes, competitions, tenders, activities.

The "[waste radar](#)" – is another good example of an initiative to raise environmental awareness and help clean the environment. With the help of this application people can report illegal waste dumps via a phone application.

APPLiA has been running awareness-raising campaigns since 2006. One of their most popular is the one with the created character of an electricity meter called Cycle-Michael. Cycle Michael is an electricity meter that grumbles when people are wasteful, has become a prominent figure, a symbol of energy saving and environmental awareness among children and young people. Numerous events, school and family programs, as well as competitions organised have given children and families the opportunity to learn about environmental problems and environmentally conscious behavior.

5. Poland

5.1 National legislation on e-waste

- Act on Waste of 14 December 2012 - Primarily refers to municipal waste, how it is handled, waste management records, municipal and WEEE management plans as well as permits and decisions.
- Act of September 13, 1996, on maintaining cleanliness and order in municipalities. Regarding WEEE, information on the location of collection points, the organization of collection and the availability of organized collection points can be found therein.
- Act of 11 September 2015 on waste electrical and electronic equipment - The Polish Parliament adopted the 2012 Recast WEEE Directive 2012/19/EU on 11th September 2015, which entered into force on 1 January 2016. It states the obligations of participants in the WEEE management system, requirements for waste equipment, how to handle it, and rules for managing waste equipment [23].
- REGULATION OF THE MINISTER OF CLIMATE AND ENVIRONMENT 1 of December 13, 2022, on the method and detailed method of calculating the minimum annual level of collection of waste electrical and electronic equipment. This regulation describes the activities to implement the law and the basis for executing rights and obligations.

5.2 Prevention of illegal e-waste trading by financial and legislative measures

Inspection plans prepared by the authorities for treatment facilities

In Poland every WEEE treatment plant is audited once a year. This is mandatory practice performed by inspectors of the Polish Environmental Protection Agency. This is a practice that is actually carried out, inspectors check activities and waste against the permit with onsite verifications. Certification by CENELEC WEEE standard is not a mandatory requirement by law. Though some WEEE treatment facilities have the WEEELABEX certificates for certain waste streams, not always for all the waste streams they handle. PROs operating in Poland do not require their contractual partners to be WEEELABEX certified. It has to be mentioned though that in Poland 3rd party audit has to be made by WEEE recyclers annually by the EMAS verified auditors.

Permitting procedures with conditions on how e-waste should be treated and reported

Getting a WEEE treatment permit is a very complicated process, which might take for up 1- 4 years depending on the scope of the activity. Apart from the Environmental Protection Agency several other parties are involved, such as local authorities, fire department, etc. Interviews revealed actors in the market agree that the process is too long and does not encourage the setting up of new plants.

Regarding the capacities available the interviewee expressed that there was a need to extend the coverage of the collection system instead of the recycling capacity of the country.

Penalties for illegal WEEE trading

In Poland heavy penalties are imposed on any waste related breaching of the regulation. In fact a recent change in the legislation put in force a very severe law regarding penalties not only for WEEE but for all kinds of waste-related activities. There is an extensive description of activities that can be penalized: ranging from transport to breaching the amount of WEEE allowed to treat in the permit. Penalties can be between 500 zloty to 1000 000 depending on the activity. Enforcement system is very strict. Control of waste management and waste transportation is widespread –different enforcement bodies cooperate e.g, EPA and road inspections body to carry out checks. The challenge is that control is focused on the legal entities who are visible due to holding a permit and not illegal activities.

Investigation of Illegal actors

It is known from press releases that the EPA and police are working on tracking down illegal actors as it was made public that illegal activities and illegal transporting of hazardous waste were discovered. Some years back there was a widely discussed problem of accidental fires at landfills, plastics recyclers, and refuse-derived fuel plants – accusation was that fires have been initiated on purpose to get rid of the waste. The government had updated the regulations regarding the waste management sector, tightened the requirements and required all actors to update their permits – if not, the permit was canceled. To obtain the permissions, local fire departments had to approve the on-site fire safety and plans for a plant. Currently the protection is much better from the fire safety point of view. From control point of view: every collection site/point, professional collectors, (retailers are excluded) and recyclers and must be visually monitored by camera – EPA has online access to these cameras of all sites. Recording must be kept for 30 days minimum.

Information campaigns on proper selective waste disposal, and on illegal actors

PROs must spend 5% of their income on awareness raising. Individually complying companies are obliged to spend 0.5% of their income. Complying with this regulation is controlled by environmental audits.

Public registers for recyclers and waste collectors

There is an online register where all actors in the waste industry have to be registered. The register is also a system where it is possible to trace waste transport – to follow every waste movement/transport. However for WEEE the system is not detailed enough, so it does not work flawlessly. One of the errors is that the system enables the reporting by WEEE categories, but e.g., PV panels are not included separately, so in some cases treatment facilities have to use an API (Application Programming Interface) to be able to do their reporting and to connect to the WEEE waste records IT systems used by recyclers/collectors. Lack of specialized knowledge of the developers of the tool can be one of the reasons for the flaws in the online system. It is known also suspected that WEEE collection data entered in the system might not always be correct.

Banning of cash transactions

In Poland there is a general limit of 20 000 zloty (approximately EUR 4350) for cash transactions. There is however no special banning of cash transactions for waste treatment facilities or scrap dealers.

Use of other collection channels

In Poland the existing collection system is being widened: there are a lot of curbside collection events and mobile collection organised by municipalities. Communication with the citizens is a main point in making this system effective. Illegal actors are however considered hinder these events, they pick up valuable waste before the collection day. Hence municipalities try to encourage citizens to deliver their waste to collection points and consequently they are reducing the number of curb-side collection events.

One of the biggest WEEE treatment facilities offers a only door-to-door collection which is special in that it is providing service all over Poland, not just in some regions. This is a private system, not connected to any municipal waste collection system. Within this system citizens can request a pick up of their large household appliances free of charge by filling in a form on the website of the company. There are also other door-to-door systems operating but they usually do not cover the whole territory of the country.

Requirement for producers of electrical and electronic equipment to pay a product fee

A producer of electrical or electronic equipment who has not met the required recovery or recycling rate is obliged to pay a product fee, calculated separately for each group of equipment. This fee is also due when a producer of equipment intended for households who has not fulfilled the obligation to collect waste equipment at an appropriate level.²

The basis for calculating the product fee is the weight of used equipment expressed in kilograms. The product fee is calculated as the product fee rate multiplied by the difference between the required and achieved minimum annual levels of waste equipment collection, recovery level and the level of preparation for reuse and recycling of waste equipment, respectively.

The product fee is calculated at the end of a calendar year and is paid without a call to a separate bank account of the competent marshal's office by 15 March of the year following the calendar year to which the fee applies. If the amount of the product fee for a given group of equipment does not exceed PLN 50, the product fee is not paid.

The EPR implements the 'polluter pays' principle, while at the same time being an incentive for the manufacturer to consider the entire life cycle of the raw material from which his product is made. It should therefore use raw materials and technologies as early as the design and production phase and introduce design and use solutions that allow more waste to be collected and as much of it as possible to be recycled.

The financial incentive is the recovery of valuable metals such as gold, silver, copper, palladium by the electrical and electronic waste treatment and recovery plant.

The legal basis for the companies' activities are the permits for waste processing, recovery and collection issued by the respective Regional Marshals and the entry in the register of the Chief Inspector of Environmental Protection.³

² <https://elektrozlom.pl/ofirmie.html>

³ <https://www.biznes.gov.pl/en/publikacje/2220-opata-produktowa-sprzet-elektryczny>

Enabling households and distributors to return electronic equipment free of charge: this benefit arises from Article 37 of the Waste Electrical and Electronic Equipment Act, which imposes an obligation on the distributor to accept waste equipment from households free of charge.⁴ Promoting correct approaches to managing electronic waste through public education campaigns: This benefit arises from Article 62 of the WEEE Act.⁵

5.3 Regional and national funding schemes for green and circular economy

Possible methods to support the development of the Renewable Energy Sources (RES) recycling sector in the context of the 2021-2027 financial perspective were indicated in:

- grants from EU funds for research and development (development of innovative solutions), for the purchase of off-the-shelf recycling solutions (implementation of innovative solutions).
- the launch of preferential loans and credits and guarantees for the development of recycling activities in RES and electromobility.

The rationale for the different forms of recycling support in RES and electromobility is as follows:

- Grants - opportunity to reduce financial risk, increase rate of return on investment; opportunity to make investments that have an R&D character, reduce risk associated with lack of commercialization of R&D results.
- Loans, preferential loans and guarantees - more favourable financing conditions than commercial ones, possibility to finance up to 100% of the investment value, possibility to finance investments that are not possible to be financed by banks due to lack of interest in participation in the sector, lack of proper security for loans.⁶

Regional funding schemes for green and circular economy

⁴ Act on waste electrical and electronic equipment

⁵ https://eur-lex.europa.eu/legal-content/PL/TXT/HTML/?uri=LEGISSUM:200403_1

⁶ Badanie ewaluacyjne pn. „Recykling wyeksploatowanych komponentów technicznych odnawialnych źródeł energii oraz akumulatorów pojazdów elektrycznych jako element transformacji w kierunku gospodarki o obiegu zamkniętym”

The regional policy objectives for sustainable development were expanded in the National Regional Development Strategy 2030 (NRDS).

Four types of expenditures contribute to the implementation of the NRDS objectives:

- a. development expenditures - financial resources spent within the framework of the state's development policy by units of the general government sector for the benefit of units not belonging to this sector, leading to positive socio-economic changes, in particular an increase in competitiveness, productivity and social and economic cohesion.
- b. Development support expenditures - these are expenditures in the sphere of the development environment, supporting development activities, but not resulting directly from the Classification of Development Expenditures (CDE), including being a source of funding for certain strategic projects and activities under the Strategy for Responsible Development.
- c. Other general government entities' expenditure - most often refers to special purpose funds and, in the case of NRDS, to grants to other entities in the sector.
- d. Expenditures co-financed from the European Union Cohesion Policy together with public national co-financing - are the sum of these categories of interventions, which each year were spent within the framework of the Operational Programme Eastern Poland and 16 regional operational programmes.

National funding schemes for green and circular economy

The ministry coordinating the implementation of the circular economy idea in Poland is the Ministry of Development. On September 10, 2019, the Polish government adopted a national strategic framework for the implementation of a circular economy. In the Polish "Road map of transformation towards a circular economy" you can read about noticing the great potential of new business models in directing Poland to the circular economy track. And that is why one of the five chapters is devoted to this topic, in which a number of activities are proposed to be implemented in our country in the coming years. For example, in the Circular Economy Roadmap, it was proposed to analyze the possibilities of introducing changes in the tax system that would enable increasing the competitiveness of enterprises operating on the basis of circular economy business models. It is mainly about activities such as recovery of raw materials, reuse of products, repairs, rental, improving the quality of products or sharing.

On the initiative of the Ministry of the Environment, a ministry cooperating with the Ministry of Entrepreneurship and Technology in the implementation of circular economy, in 2017 a pilot

program entitled "Circular economy in the municipality" was established and financed by the National Fund for Environmental Protection and Water Management.

The Ministry of Development and Technology plays a leading role in the coordination of economic transformation in Poland towards the circular economy model and promotes the joint implementation of circular economy in Poland by engaging various environments at the local, regional, national, as well as the EU and global level - from the world of science, the administration sector public sector, entrepreneurs, citizens - and their cooperation.

Despite the long time that has passed since the discussion and the start of work on circular economy was initiated, there are no considerable, finalized actions of the Polish government and everything remains in the sphere of discussion, lacking specific regulatory actions

Promotion of training in e-waste management

There is a training requirement in Poland for employees who work in WEEE treatment facilities and take part in removing the cooling agent during the treatment of cooling equipment. Training is an official training prepared and held by the government. Generally any employee working at a waste treatment facility has to have station training.

5.4 Finance & taxation policies for recycling businesses

Circular Economy financing

No separate funding framework has been assigned to the [CE Roadmap](#) due to the fact that the document identifies actions of a legislative nature necessary to be taken solely by the government administration in order to create appropriate framework conditions for the transformation towards circular economy in Poland. The actions proposed in the CE Roadmap mainly concern analytical, conceptual, informational, promotional and coordination work in areas within the competence of individual ministries.

The circular economy concept is well established in the country's strategic documents, including the Strategy for Responsible Development (SRD), the draft Productivity Strategy and the draft National Environmental Policy. Being the basis of the country's development policy, these documents are and will in the future be the reference point for the orientation of the support system in the area of CE, including in particular from the Cohesion Policy and the Common Agricultural Policy. Circular economy will be reflected in particular in investment measures and those aimed at innovation, research and development. Financial support for CE-related activities should also be reflected in the funds currently included in the HORIZON2020 programme.

The implementation of circular economy will have the possibility to be financed from other sources of the public finance sector, such as environmental taxes. In the future, if such legislative changes are made to the waste management system, this may also include funds from the deposit or deposit schemes of the Environmental Protection system.

The implementation of the circular economy will require staff commitment in terms of the ministries responsible for the various activities included in the CE Roadmap.⁸

Tax incentives for innovation and investment in new technology lines

In Poland, entrepreneurs who are taxpayers can deduct from their tax base up to 50% of the amount spent on the acquisition of new technology. New technology, as defined in the PIT and CIT Act, is technological knowledge in the form of intangible assets, in particular the results of research and development work, which makes it possible to manufacture new products or improve current products or services and which has not been applied in the world for more than the last five years, as confirmed by an opinion of a scientific unit independent of the taxpayer.

Acquisition of new technology is understood as the acquisition of rights to technological knowledge, by means of an agreement on their transfer, and the use of these rights. A taxpayer is not entitled to tax deductions if, in the tax year or in the preceding year, he or she was operating in a Special Economic Zone (SEZ) based on a permit. It is worth specifying that in accordance with Polish regulations, in the case of physical entities, the allowance may be used by PIT taxpayers earning income from business activity and settling according to the tax scale. The discount does not apply to persons obtaining income from sources other than business activity, settling at a flat rate of 19%, or taxed as a lump sum on registered income.

Companies doing business in Poland can also benefit from tax incentives provided for research and development centres. An entrepreneur, which is not a research institute conducting research or development work, may obtain the status of a research and development centre after fulfilling the conditions provided for by law. A research and development centre may create an innovation fund from a monthly allowance of no more than 20 per cent of the revenue generated by the research and development centre in each month. In addition, a research and development centre is exempt from paying property tax, agricultural tax and forestry tax.⁷

⁷ Przegląd zachęt podatkowych w kontekście CSR w wybranych krajach europejskich

5.5 Models of territorial value chains that can kick-start recycling

Activities that can initiate recycling are the creation of regulations, norms and standards, such as tax law, waste law, environmental law. Setting an example through green public procurement by stimulating demand for CE products and services. Creating facilities such as support for the development of research, development and innovation in circular economy can be an incentive. Cooperation in joint projects (e.g. Horizon 2020).[8]

The actions undertaken by the public administration can be classified as:

- creation of regulations, norms and standards,
- setting an example,
- promotion and communication,
- development of facilities,
- cooperation.⁸

National best practices promoting recycling

The Ministry of the Environment conducts public campaigns as part of environmental education. Opinion polls and other activities showing how to protect nature. The examples of the public campaigns include:

- "High-five for segregation" - an information and education campaign to promote pro-environmental behaviour on the positive aspects of waste segregation;
- "A house that saves money for me" - an information and promotional campaign aimed at promoting passive, energy-efficient construction and renewable energy sources;
- "Our Garbage" - a social campaign aimed at promoting and encouraging people in Poland to segregate waste properly;
- "EcoSzyk" - an educational campaign to showcase individual actions towards ecology that everyone can take;

⁸ Gospodarka o obiegu zamkniętym w polityce i badaniach naukowych, Instytut Gospodarki surowcami mineralnymi i energią Polskiej Akademii Nauk, Wydawnictwo IGSMiE PAN Kraków 2019

- "Don't litter your conscience" - a public awareness campaign to encourage proper waste separation and show that waste is not rubbish but valuable raw materials.⁹

The Ministry for Climate and the Environment is also involved in international campaigns, such as the 'European Sustainable Transport Week' and the 'European Week for Waste Reduction'. An interesting example from the Polish Circular Economy Roadmap is the idea of creating a nationwide internet platform for renting and sharing products with low frequency of use.

Consumer campaigns

According to Article 15 of the Waste Electrical and Electronic Equipment Act, the producer of equipment is obliged to conduct public education campaigns.

Public campaigns are organised to increase the environmental awareness of the public, resulting in an increase of waste equipment collection rates. The purpose of carrying out campaigns is to raise public awareness of the impact of waste equipment on human health and the environment, its proper handling, methods of separate collection, return systems, reuse, recovery and recycling. Information is provided in the form of leaflets and information brochures, posters, competitions, conferences or information events.

The obligation to conduct public education campaigns can be exercised:

- Individually,
- through an electrical and electronic equipment recovery organisation.

Producers of equipment fulfilling the obligation to conduct public education campaigns themselves can either:

- contribute to public education campaigns, or
- pay into a separate bank account of the competent marshal's Office

a total of at least 0.1% of the net revenues from the placing on the market of the equipment in the preceding calendar year. A producer who commences its activity in a given calendar year shall calculate the amount of funds to be allocated for the conduct of public education campaigns with

⁹ <https://www.gov.pl/web/klimat/kampanie-spoeczne>

reference to the net revenues from the placing on the market of the equipment in that calendar year.

The obligation shall be settled by 31 January of the year following the year in which the equipment producer was obliged to carry out public education campaigns. A producer of equipment is exempt from the obligation to conduct a public education campaign if the amount of funds calculated as described above does not exceed PLN 100 in a given calendar year.

Examples of consumer campaigns are listed below:

- The ELECTRO - SYSTEM organization has established a nationwide system for collecting waste electrical equipment directly from homes ("DECIDUJESZ.PL" project). Large household appliances are collected by the company free of charge, while other electrical waste (e.g., TVs, microwaves, computers, monitors) is collected for a fee.
- "Collect Batteries and Phones" - an education and information project - aimed at raising environmental awareness about the proper disposal of used batteries and phones. Informing how hazardous waste can affect both the environment and people. Organizing separate collections of batteries and telephones in educational establishments around the country. Competition for the largest collection of used batteries and telephones.
- Recycling Days - an education and information project organized as part of the Switch on Eco Imagination campaign - where happenings, exhibitions and competitions on environmental issues are organized across Poland. The aim of the project was to raise awareness of environmental issues related to the disposal of waste electrical and electronic equipment.
- "Electro Garbage Truck" - project during which waste electrical and electronic equipment is collected free of charge
- As part of the eco-PROFIT - REcycling pays off! Participants take an active part in raising society's environmental awareness of waste electrical and electronic equipment as well as batteries and accumulators. By promoting ecological attitudes among the local community and organizing
- collections of waste equipment, batteries and accumulators, participants contribute to the proper management of this waste, environmental protection and additionally obtain funds for their activities.¹⁰

¹⁰ <https://eko-profit.pl/>

6. Romania

6.1 National legislation on e-waste

The 2002 Directive was transposed by the Government Decision on WEEE (No. 448/19.05.2005) which outlines measures related to the prevention of WEEE, recycling and others forms of recovery. The national transposition of Directive 2012/19/EU on WEEE entered into force via the Order on waste electrical and electronic equipment on 26 April 2015. Below can be seen the list of relevant national legislations on EEE and WEEE.

EEE / WEEE legislation (Ecotic Romania, 2021)

- Emergency Ordinance no. 196/2005 on the Environmental Fund.
- Order no. 578/2006 of June 6, 2006, for the approval of the Methodology for calculating the contributions and fees due to the Environmental Fund
- Order 1494 for the approval of the procedure and criteria for granting the operating license
- EMERGENCY ORDINANCE no. 5 regarding electrical and electronic equipment waste, published in the Official Gazette on April 16, 2015.
- ORDER 1441 2010 guarantees regarding the establishment of the methodology for establishing and managing the financial guarantee for the producers of electrical and electronic equipment.
- Order 556 of 2006 regarding the specific marking applied on the market after December 31, 2006.
- ORDER Nr. 269/2019 of March 20, 2019, on the approval of the Procedure for establishing the registration, reporting, frequency of reporting to the National Register of Producers, as well as the manner of evidence and reporting.
- ORDER Nr. 417/2021 of March 10, 2021, on European standards in the field of treatment.

Waste legislation (Ecotic Romania, 2021)

- GD no. 322 of 2013 on the List of prohibited substances in electrical equipment
- OM no. 95 of 2005 regarding the storage of impurities
- EMERGENCY ORDINANCE no. 92 of August 19, 2021
- Decision 200/532 EC Waste Classification.

- Law 132 of 2010 - selective collection of public institutions.

Waste shipment legislation (Ecotic Romania, 2021)

- HG Nr. 1061 of September 10, 2008, on the transport of hazardous and non-hazardous waste on the Romanian territory.

6.2 Prevention of illegal e-waste trading by financial and legislative measures

Penalties for illegal WEEE trading,

Penalties imposed on illegal activities are one of the financial measures to prevent such operations. In Romania the recycler interviewed was at the opinion that the amount of penalties were not very high and enforcement of penalties was limited mainly to official and licensed facilities. The interviewee commented that operators working with lower quality processes and with no standards in place were not checked because they are less easy to identify and locate. Apparently tens of thousands of WEEE are estimated to be treated by car shredders and are exported to countries such as Turkey. Many times inspections do not spot this problem even if they visit the scrap dealers/car shredders.

Limited cash transaction

In many countries there is a limit to cash transactions when it comes to the trading of WEEE. In Romania in general the limit for cash transactions is around 1000 euro/day. However specifically cash transactions are not banned for WEEE pre-treatment facilities below this amount. According to interviewees, in real life cash transactions are happening at WEEE recyclers and even more at scrap yards. It needs to be clarified that the recycler interviewed for this deliverable explained that does not engage in cash transactions with individuals or companies.

Permitting procedures with conditions on how e-waste should be treated and reported and inspection programs

When it comes to legislative incentives one of the most efficient ways to prevent illegal e-waste trading is making sure the requirement stated in the legislation are fulfilled. Inspections plans prepared and carried out by the national or environmental authorities can ensure illegal trading is caught and penalised.

In Romania though there are inspections before the license is given, according to a local WEEE pre-treatment facility there are no planned, regular inspections. Inspections are mainly done as a

reaction to the reporting of a problem by externals. In these cases the environmental guard visits the facility and checks its treatment processes. However it has happened in some cases that though irregularities were found during the inspection, the company in question was still allowed to continue its operations. E.g. Double reporting was done by one company to PROs, and once this was identified the company could stay on the market and was not required to shut down.

It was reported that there was no unified inspection process across regions. Inspection practices and requirements might differ from county to county. The recycler interviewed did not know of an inspection roadmap and was not aware that there were any inspection manuals prepared and in use. It was observed that personnel in the environmental authorities in charge of the inspections is dealing with a wide range of operations and many times lacks in-depth knowledge of a specific waste stream.

For getting the WEEE treatment license the downstream treatment chain has to be presented, but once the license is given there are no checks of the same.

Information campaigns on proper selective waste disposal, and on illegal actors

In Romania at national level there are no campaigns organised for the public to raise awareness on the importance of the selective waste disposal of WEEE and/or illegal actors. There used to be one day dedicated to curbside collection, however this is not organised any longer. One of the reasons why this is not organised any longer might be the fact that illegal actors passed by the houses ahead of the collection day and picked up the valuable materials. It has to be noted that in Romania people in general expect something in return for their used electronics, instead of giving them away for free.

PROs on the other hand are organising selective collection campaigns for WEEE. Their work is regular however market penetration is not so widespread.

Public registers

Publicly available lists make the work of illegal actors more complicated as they ensure that anyone can check whether a given company is among the officially licensed actors in the WEEE sector. Public WEEE registers including lists of producers, recyclers and collections exist in Romania.

National plans for CRM recovery

According to the desk research and interviews, no such plans have been made public by the Romanian authorities.

Digitization of reporting and procedures related to WEEE

On 01 February 2023, the Romanian Minister of Environment, Water and Forests Published a Draft Order regarding the approval of instructions for using the IT application Information System for Ensuring Waste Traceability (SIATD), in order to monitor and verify the correctness of transactions with packaging waste, tires, electrical and electronic equipment, batteries and portable accumulators in the system of EPR.

In order to monitor and verify the correctness of transactions with waste packaging, tires, electrical and electronic equipment, batteries and portable accumulators in the system of extended liability of the producer and to provide statistical information, the Information System for ensuring the traceability of waste is established, hereinafter referred to as SIATD.¹¹

The aim is to stop double reporting of WEEE. It is for PROs, collectors and recyclers. The recyclers have to register through PROs.

The Administration of the Environmental Fund is intended to ensure the use, as well as the operation, of SIATD. This allows for the monitoring and verification, in real time, of transactions related to packaging waste, tires, electrical and electronic equipment, batteries and portable accumulators for which the organizations who implement EPR, or the authorized economic operators for the implementation of the extended liability of the producer, finance the management costs as provided for by Law no. 249/2015. SIATD is made available to users, free of charge, by the Environment Fund Administration, on the institution's website, at www.afm.ro.

The Draft Order provides additional information regarding terms of use of SIATD, enrolment, as well as relevant instructions for use. Specific usage rules are proposed depending on the type of product for which the economic operator is responsible such as EEE, batteries, etc. (Romanian Ministry of Environment, Water and Forests , 2023)

6.3 Regional and national funding schemes for green and circular economy

Funds to set up collection points and recycling facilities for WEEE

¹¹ Compliance and Risk – C2P application – private access

National Resilience Plan subsidies are available to municipalities for setting up collection points. The aim is to set up a few hundred collection points. There are doubts about the ability of the municipalities to maintain the collection points as this requires further fundings. There are funds made available from Environmental Funds to foster the setting up of new WEEE recycling facilities. The methodology has not been made public yet. No funds are available for the promotion of the optimisation and improvement of e-waste management technologies and processes in already operational facilities.

Promotion of re-use

In December 2023 a new legislation was transposed on re-use into the Romanian legislation, so this area is relatively new in the country.

Funds and subsidies available to promote re-use of disposed EEE are not known, neither has been initiatives to promote such consumer behaviour with awareness raising campaign on national level.

Individual PROs have campaigns and use their own network to carry out re-use activities. One of the national PROs for WEEE - Ecotic - for example runs the "Join the circle of solidarity" project. The project "Join the circle of solidarity" is an initiative of ECOTIC, launched in 2017, which each year brings more and more partners involved in the same cause. The main purpose of this project is to give a new life to used IT equipment by preparing it for reuse and then donating it to disadvantaged communities. Companies are invited to donate IT equipment that would otherwise be scrapped and to actively contribute to the digitization of beneficiaries in disadvantaged areas (Ecotic Romania, 2020).

The organisation [Ateliere fara frontiere](#) is a non-governmental organisation operating in Romania for the social, professional and civic integration of vulnerable, excluded and marginalized people. Since 2019, AFF is part of Groupe SOS, a global network working to achieve the Sustainable Development Goals. Through its edulink workshop they collect, dismantle and prepare WEEE for recycling and they collect and prepare computers and other IT equipment for reuse to be donated to schools from disadvantaged regions in Romania.

In 15 years they have equipped IT laboratories in more than 10% of rural schools in Romania, with over 27,000 donated IT equipment.

There are no known funds to foster the preparation of repair manuals/guides, and there are no training materials created for the e-waste management/refurbishment.

6.4 Finance & taxation policies for recycling businesses

There are no known financial policies that affect the daily operation of WEEE recycling businesses. Recyclers are not aware of subsidies that they can apply for in any area of their operations, e.g. of digitising shipments, etc. However as described above, funds are available to set up new facilities.

Taxation policies are not favouring WEEE recyclers. Landfill taxes have been introduced in 2019 and are gradually being increased, but they are far from EU level. There are no tax reductions for operating a refurbishing company, or for consumers to buy refurbished products.

6.5 Models of territorial value chains that can kick-start recycling

National best practices promoting recycling

In Romania WEEE recyclers are mainly buying material from collectors, scrap dealers and retailers. The cost of acquiring the WEEE is financed by PROs. There are some municipalities that organize door-to-door collections, but according to the interviewees they cannot be considered best practice. According to interviewees, in Romania people expect something in return for their WEEE, which hinders the return of WEEE to municipal selective collection points, awareness is not there among the public to know the hazardous nature of waste.

According to the WEEE recycler interviewed, the biggest issue with WEEE in Romania is scavenging¹² and the second alarming issue is considered to be scrap dealers treating WEEE. Around 50 000 tons of WEEE are lost in scrap mostly from white goods. According to the same recycler a large amount of WEEE is also lost in landfill sites. There are waste pickers who scavenge the landfills.

Consumer campaigns

In Romania PROs for WEEE carry out consumer campaigns to raise consumer awareness of the importance of separate collection of WEEE. Some PROs who are active in carrying out public campaigns are: Ecotic, RoRec, Environ, ArcWaste, Centrul Național de Reciclare Electrică și Electronică. Some of their campaigns are described below in more detail.

¹² Scavenging is the term often used for describing the illegal removal of valuable parts of WEEE

Some examples are the Recycling Patrol, since 2011 Rorec has been carrying out its national environmental education project called: "[Recycling Patrol](#)" dedicated to pre-university education. The aim is to promote separate collection of WEEE. Since the start of the project over 93,000 coordinating teachers, preschoolers and students from kindergartens, schools, high schools in Bucharest and from all counties of the country participated in this national program. Each school enrolled in this project carries out a series of educational activities for students, who become agents of the Recycling Patrol. Agents are actively involved in stimulating communities for the actual collection of used electrical equipment, establishing not only performance in the collection, but especially in mobilizing those around them.

All the awareness campaigns and programs organized by Environ and which are addressed to people of all ages and backgrounds, from kindergarten to corporate and have the same main idea: they aim to innovate and change mentalities, habits, attitudes, behaviors to have a cleaner environment and people with a healthier lifestyle. Their educational campaign [Baterel](#) (a recycling hero) began in 2011 as a pilot project of information and awareness among students from several dozen schools. With each edition, the number of schools and students participating in the campaign has increased, so that, almost 12 years after its launch, the Baterel community counts over 175,000 students from 2500 schools, kindergartens and high schools across the country. In 2021 alone, they collected over 30 tons of used e-waste and batteries from the schools participating in the campaign.

Ecotic organised their campaign "[Be in your country same as outside](#)" that had an outreach of around 4 million people. The project included public media TV and Youtube campaign with National Audio-Video Commission approval (CNA) meaning distribution among TV channels was for free.

The Centrul Național de Reciclare Electrice și Electronice (National Center for Electric and Electronic Recycling Association) has started the national campaign for the collection of WEEE, with the support of over 20 participating mayoralities. The collection campaign "[Let's be ECO](#)" has as objectives the increase of the level of information and awareness of the population about the importance of separate collection of e-waste in order to recycle it, as well as to increase the quantities of waste collected from the population. The pilot project takes place between February 14 and April 12, 2023 and is organized in several localities that will organize collection actions during the campaign period. As part of the campaign, the bonuses offered in exchange for the delivery of WEEE consist of prizes. The ultimate aim is to motivate citizens to be actively involved in keeping the environment clean. The message is that the most important thing they can do is separate collection, in particular keeping e-waste away from landfills and reintroduce it into the circular economy, by handing it over to organisations authorised to collect WEEE.

ArcWaste organized an [awareness raising workshop](#) in 2 days between October 3-4 2022, in which the presenters talked about the importance of separate waste collection and especially of collecting WEEE that can have components with dangerous substances for human health and the environment. On behalf of the "Vladimir Streinu National College", professors of the college spoke about the importance of waste collection, volunteering actions and the importance of their involvement in such activities that will lead to a Green Future. The students of the National College "Vladimir Streinu" were informed about the place where the waste electrical and electronic equipment can be handed over, respectively in the stores of electrical equipment, hypermarkets, authorized waste collectors or in the campaigns organized by the municipality.

7. Slovenia

7.1 National legislation on e-waste

The national transposition of Directive 2012/19/EU on WEEE entered into force via the Decree on waste electrical and electronic equipment (Official Gazette No. 55/15, 47/16, 72/18, 84/18 – ZIURKOE, 108/20 and 44/22 – ZVO-2) on 8 August 2015.

It sets out the rules for handling waste electrical and electronic equipment in accordance with Directive 2012/19/EU of the European Parliament and of the Council of 4 July 2012 on waste electrical and electronic equipment (WEEE).

The Decree covers the following areas:

- EEE planning, marking, and providing EEE information
- Environmental objectives in WEEE collection and treatment
- WEEE handling rules
- Producer's obligations
- Determination of shares and equalization of producers' obligations
- Financial guarantee
- Obligations of the collector
- Obligations of the treatment operator
- Record of producers
- Cross-border shipping of used EEE
- Reporting to the European Commission
- Control of the implementation of the decree
- Penal provisions

According to the Decree (Official Gazette No. 55/15, 47/16, 72/18, 84/18 – ZIURKOE, 108/20 and 44/22 – ZVO-2) the producers and importers that put the EEE on the Slovenian market are obliged for the environmentally friendly disposal of the EEE after end of life. The producers and importers

can fulfil their legal obligation individually or through the Producer Responsibility Organizations (PROs). Producers and importers must ensure the collection of the WEEE on the entire territory of Slovenia. This is the main reason that there are no individual collective schemes in Slovenia. The holders of the WEEE can drop off their appliances at the collection points and municipal collection yards free of charge. End users can also drop off the WEEE to the distributors when buying the new one. In Slovenia the citizens can dispose of the WEEE also in the street containers dedicated for the collection of the small WEEE (dimensions below 0,5 m). The PROs are obliged to take over all WEEE from the municipal waste yards free of charge. The collected WEEE is transported from the collection points by the logistic companies to the consolidation points where is sorted into different categories (large domestic appliances, small domestic appliances, TVs, IT equipment, cooling and freezing equipment, lamps) and transported to different recycling facilities in Slovenia and abroad. All activities in the process are financed by PROs. In addition to the collection, transport and recycling the PROs are also responsible for the awareness raising of the public.

According to the Decree (Official Gazette No. 55/15, 47/16, 72/18, 84/18 – ZIURKOE, 108/20 and 44/22 – ZVO-2) the producers and importers that put the EEE on the Slovenian market are obliged to finance the cost of their EPR obligations. The PROs organize the WEEE management operations for the EEE producers and importers. The producers and importers have a contract with the PROs and pay them the environmental fee for each EEE that is put on the Slovenian market. The environmental fee must not be higher than the cost of the WEEE management. Possible excesses must be used for the fulfilment of the future obligations of the producers and importers.

The treatment of the WEEE must be carried out in accordance with the general requirements for WEEE treatment from the standards SIST EN 50625-1, SIST EN 50625-2-1, SIST EN 50625-2-2, SIST EN 50625-2-3, SIST EN 50574-1 and SIST EN 50574-2 and using the best available techniques. The SIST standards are identical to the following CENELEC standards:

- EN 50625-1 General requirements
- EN 50625-2-1 Gas discharge lamps requirements
- EN 50625-2-2 Displays requirements
- EN 50625-2-3 Temperature exchange equipment requirements
- EN 5074-1 Collection, logistic and treatment requirements for end-of-life household appliances containing volatile hydrocarbons

The standards cover the following areas:

- General and legal compliance and document management
- Documents and downstream monitoring

- Material reception, sorting, handling and storage
- Training, facility safety and emergency planning
- Depollution
- Batch tests and Recycling & Recovery rates

According to the Decree on waste electrical and electronic equipment the collection target is 65% of the average annual weight of the EEE put on the Slovenian market in previous three years or 85% of the WEEE generated annually. In 2022 the collection target is 29.087 tons (internal calculation of ZEOS (based on requirements of the Decree).

7.2 Prevention of illegal e-waste trading by financial and legislative measures

Permitting procedures with conditions on how e-waste should be treated and reported

According to interviewees, procedures for obtaining environmental permits for WEEE recycling facilities are demanding and time-consuming. Permits are issued on the basis of the Environmental Protection Act (Official Gazette of the Republic of Slovenia, no. 44/22 and 18/23 - ZDU-10), the Waste Regulation (Official Gazette of the Republic of Slovenia, no. 37/15, 69/15, 129/20, 44/22 – ZVO-2 and 77/22) and Regulations on waste electrical and electronic equipment (Official Gazette of the RS, no. 55/15, 47/16, 72/18, 84/18 – ZIURKOE, 108/20 and 44/22 – ZVO-2). Requirements for the storage and processing of WEEE are defined in Annex 5 of the Regulation on Waste Electrical and Electronic Equipment. In addition to the general requirements, recyclers must demonstrate that they follow the EN standards for WEEE recycling.

Inspection plans for recycling facilities

The Natural Resources and Spatial Planning Inspectorate carries out inspections according to the priorities previously defined. WEEE recycling plants belong under the first or second priority, depending on the level of environmental impact. Inspections are carried out once a year for plants with the first priority, and every two years for those under priority number two.

Investigations of illegal actors

Natural Resources and Spatial Planning Inspectorate detects potential illegal actors during regular monitoring of WEEE collectors and processors and upon reported suspected violations. The reports of the inspectorate are confidential and are not made public.

Information campaigns on selective waste disposal, and on illegal actors

WEEE collective schemes carry out awareness-raising campaigns for the correct disposal of the WEEE. Instructions for end-users from households are available on their websites and in WEEE collection points.

Register for recyclers and waste collectors

In accordance with the Environmental Protection Act (Official Gazette of the Republic of Slovenia, no. 44/22 and 18/23 - ZDU-10) and the Waste Regulation (Official Gazette of the Republic of Slovenia, no. 37/15, 69/15, 129/20, 44 /22 – ZVO-2 and 77/22) recyclers and waste collectors in addition to obtaining an environmental protection permit must also be registered in the [list of processors and the list of collectors of WEEE](#).

Other collection channels (curb side, door-to-door campaigns)

According to the Waste Regulation, waste from households can only be accepted by local public waste management service providers. Households can order free pick-up (door-to-door) of bulky waste from public service providers once a year. Further pickups are possible, but must be paid for.

Penalties for illegal WEEE trading

Penalties for illegal trade in WEEE are listed in Articles 57 and 59 of the Regulation on waste electrical and electronic equipment. A fine from 10,000 to 30,000 euro is imposed on a collector or treatment contractor who is not involved in the implementation of the collective WEEE management plan.

Banning cash transactions at recyclers

Payment in cash is not explicitly prohibited, but in accordance with the general terms of business for legal entities, payments for the issued invoices are transferred via a transaction account. In the case of payments to natural persons, it is possible to pay in cash upon presentation of the tax number.

7.3 Regional and national funding schemes for green and circular economy

Setting up of additional collection points

In the framework of the LIFE program, ZEOS received funding for the co-financing of street containers and reuse corners within the [LIFE project – E-waste governance](#). There were 770 street collection containers set up and 66 so called “re-use corners” established for reuse throughout the entire territory of the Republic of Slovenia.



Figure 1 Street container



Figure 2 Reuse corner

Setting up of recyclers

There are no dedicated funds to foster setting up of new WEEE recyclers, but funds can be obtained through other tenders. In the framework of the Plan for the recovery of the economy after COVID, Surovina – a Slovenian WEEE recycling plant - received funds to co-finance large investments.

Digitalisation of reporting

There are financial incentives called Vouchers available within the framework of the Regional Development Agency that were intended to encourage the digitalization of EEE/WEEE reporting. The purpose of the voucher is to encourage target groups to prepare a digital strategy with the aim of digital transformation of companies. The funding agency is European Commission Directorate-General for International Partnerships (Europe Aid HQ). The contracting Authority in Slovenia is the regional development agency for Podravje region - Maribor. The eligible applicants are private sector, individuals, sole proprietors, and cooperatives.

Co-financing of the eligible costs of digital strategy preparation (external contractor costs) covers the following activities:

- a. assessment of the situation in the field of digitization,
- b. preparation of a plan for the development of the company's digital capabilities and
- c. preparation of a strategy for companies for digital transformation, which will cover following key areas:
 - customer experience,
 - data strategy,
 - processes and digital solutions for business support,
 - digital business models,
 - products and services,
 - strategy for the development of digital personnel and digital workplaces,
 - strategy for the development of digital culture,
 - cyber security and Industry 4.0

Promotion of separate collection and reuse

Within the [LIFE project – E-waste governance](#), ZEOS received funding for the promotion of reuse and for the promotion of separate collection among different target groups. Part of the funds was dedicated to the setting up spaces to return re-usable appliances. These collection points are called “corners for re-use” – see Figure 2. 66 such re-use corners were set up.

Promotion of preparation of repair guides and training in e-waste management

As part of the ongoing [LIFE project - Turn to e-circular](#), ZEOS received funding for the promotion of a circular economy in the field of handling WEEE and for the promotion of repair. Part of the funds will be allocated to the production of tutorial videos on how to repair used EEE. Around 100 tutorials will be made. They will represent basic repairs and maintenance of different EEE. They are intended for the public and will be accessible through ZEOS’s website and on YouTube.

7.4 Finance & taxation policies for recycling businesses

Subsidies for recyclers

The state doesn't grant subsidies specifically for recycling, but recyclers can apply for them within the framework of other instruments/funds which are not intended specifically for recycling but also for other types of industry.

Reduced taxes for recyclers

The recycling service for WEEE is taxed at a reduced rate 9,5% (original tax rate being 22%) based on the point 2 of article 41, appendix 1, point 16 of the Value Added Tax Act (Official Gazette RS, No. 13/11 , 18/11, 78/11, 38/12, 83/12, 86/14, 90/15, 77/18, 59/19, 72/19, 196/21 – ZDO, 3/22 in 29/22 – ZUOPDCE).

Landfill taxes

The taxes on waste disposal are regulated by the Decree on the environmental tax on pollution from the landfilling of waste (Official Gazette of the RS, no. 14/14 and 44/22 – ZVO-2). In accordance with the Decree on waste electrical and electronic equipment, it is prohibited to dispose of waste electrical and electronic equipment in landfills. Only fractions that remain after recycling and cannot be incinerated may be disposed of.

Landfill tax was introduced in 2001. The latest change in the tax was made in 2018. The tax for the disposal of hazardous waste is set to 22 euros per ton, while the non-hazardous landfill tax for municipal waste is 11 euros per ton.

Penalties for wrong disposal

Penalties for improper handling of waste are prescribed in Articles 61 to 71 of the Waste Regulation (Official Gazette of the Republic of Slovenia, No. 77/22).

Tax reduction for recyclers investing or setting up new companies

There is no tax reduction for recyclers investing or setting up new companies. In the list of allowances for investing in the digital and green transition (March 2023) according to Article 55 of the Corporate Income Tax Act - ZDDPO - 2, the investments in new factories/recycling facilities are not listed.

Reduced VAT for buying reused appliances and for preparation for re-use companies

There is no reduced VAT for buying reused appliances. The general tax rate of 22% applies to the purchase of re-used appliances. There are no reduced taxes for refurbishers. The general tax rate of 22% applies to refurbishers.

7.5 Models of territorial value chains that can kick-start recycling

National best practices promoting recycling

WEEE collectors give the collected WEEE to recyclers in Slovenia or abroad who have signed contracts with the holders of collective WEEE management schemes. The criterion is usually the lowest price for processing, which also includes the cost of transport from the collection point to

the recycling facility. For this reason, a lot of WEEE collected in Slovenia is exported to other EU countries, where it is recycled. As a result, recyclers in Slovenia cannot count on a constant source of input raw materials, so they do not invest in additional capacities for recycling and improving the quality of the recycling process.

Improvement of current practices

Recyclers in Slovenia could process larger amounts of WEEE if they became more competitive compared to recyclers in nearby countries (Czech Republic, Italy, Germany, Austria). This could be achieved by obtaining more and cleaner materials from WEEE, which could be sold at a higher price. This would require investments in process modernization.

Consumer campaigns

Within the framework of LIFE projects, ZEOS carries out awareness campaigns for various target groups, especially households and schoolchildren. The campaign to bring places for the disposal of WEEE closer to the holders of this waste, who can hand it over to street containers, was very successful. There are 770 of them in the territory of the Republic of Slovenia.

8. Conclusions

The aim of this deliverable was to define the prerequisites and the enablers that could initiate and further develop a territorial WEEE recycling network. It was observed that in all the countries national policies have been set to implement the EU Directives on waste management. The way of encouraging separate collection and recycling of WEEE is however somehow less homogeneous in the countries that were examined.

Prevention of illegal e-waste trading with the help of legislative and financial measures

Permitting procedures with conditions on how e-waste should be treated and reported

Permitting procedures should be harmonised at national level, to provide a level playing field. The procedures now differ in some aspects sometimes even within the same country.

In Slovenia and the Czech Republic the application of CENELEC standards are obligatory for WEEE recycling facilities. In the rest of the countries examined this is not a legal requirement, however in Greece for example PROs working with WEEE recyclers require their contractual partners to be certified according to the CENELEC standards. Some [individual treatment facilities](#) in RIS countries also choose to certify according to the WEEELABEX/CENELEC standards on a voluntary bases, although certification might not be mandatory in their country. A harmonised approach to be used by all countries would avoid leaks of WEEE to less strict jurisdictions, and the waste would have more possibilities to stay in the country where they were generated, hence supporting business creation and investments in an equal and transparent framework.

Countries (Czech Republic and Slovenia) where standards for recycling facilities have been made mandatory could share their experiences with other countries within the frameworks of a workshop to explain how this works in these countries. This way recyclers, PROs etc. could explain their views on the different aspects of certification.

In Greece it can also be observed that the permitting procedure is different based on the quantity of WEEE to be treated. Companies wishing to treat less than 15 000 tons have a simplified application process for getting a permit. This might result in a less balanced level playing field in the industry, and might raise questions on the quality of WEEE management. While it makes perfect sense that facilities treating higher volumes are subject to more controls from the authorities, all facilities treating WEEE, regardless of the volumes treated, should comply with a baseline of requirements to ensure proper treatment of WEEE. In Romania information achieved suggest that the inspections plans are not unified nationally so the content of the inspections may differ between the counties resulting again in an uneven playing field, which might give competitive

advantages to some recycling facilities. It is recommended that the permitting procedures should be harmonised if not on EU level, at least on national level. An idea would be to collect examples of the specific terms regarding WEEE treatment that countries are using in recyclers' and collection points' permits along with conditions that PROs include in their contracts with recycling facilities to inspire authorities and other PROs in the RIS countries to set their own conditions.

Inspection plans to visit waste recycling, collection and logistic facilities

Inspections are a way of monitoring whether actors of the WEEE sector follow the terms and conditions set in the permits. Based on the interviews it was found that in most countries inspections were carried out on an ad-hoc basis, or based on complaints. This is not the case in Slovenia where there is a clear inspection plan. Inspections are carried out once a year for plants with the first priority, and every two years for those under priority number two. (WEEE recycling plants belong under the first or second priority, depending on the level of environmental impact.

In the rest of the countries there was no periodicity observed in the inspections (e.g. in Romania and Greece) so in most cases it is suspected that there are no inspection plans strictly followed by the authorities to ensure that actors adhere to the regulations imposed on them (further confirmation needed from the authorities). It was observed in Greece and Romania that the Environmental Authorities have insufficient number of staff, which could be one of the reasons for the lack of inspection plans carried out. Lack of staff can also be the reason for the lack of in-dept knowledge by inspectors in specific waste streams – a problem mentioned to be relevant in Romania.

In this respect a training organised for inspectors on WEEE management could be a good measure to enhance the efficiency of the inspections. Funds made available for developing training materials and organising trainings for inspectors/auditors on WEEE and other waste specific management practices could be a way to increase the knowledge of these actors. It is also suggested to create multistakeholder inspection teams and workshops, where inspectors, authorities, PROs and the recycling industry could meet to learn from each other. They could create a working program with objectives set for the different stakeholders, e.g., number of inspections/year prioritized according to available resources, trainings to inspectors. For sharing/discussing inspection protocols then European Union network for the Implementation and Enforcement of Environmental Law ([IMPEL](#)

[network](#)¹³ the European WEEE enforcement network (EWEN)¹⁴ and also organizations with long experience in WEEE auditing such as WEEELABEX can be tapped into.

It has to be noted however that in some countries such as Greece and the Czech Republic the PROs are also in charge of audits (where PROs employees carry out audits), or require third party periodic auditing of the treatment facilities they are in contract with. In this case certified auditors carry out the audits.

Regular reporting of the depolluted fractions and volumes treated by the recyclers can be a way of identifying wrong processes and candidates for inspections. Data can be reported regularly by recyclers to PROs they have a contract with, or to inspection authorities for supervision.

Penalties for illegal WEEE trading and investigations of illegal actors

Penalties for illegal WEEE trade has been set by regulation in all the countries. However it has to be noted that it is difficult to implement such sanctions due to the illicit nature of the activity. In some countries there is a possibility to report actors connected to illegal waste trade. Making platforms for reporting illegal WEEE trade more visible to the public could facilitate the work of the environmental authorities. In Hungary it was noted that authorities sometimes identify illegal actors based on their advertisements to buy WEEE on the internet. Apart from this information on Hungary there were no other countries where the investigation of illegal actors was known – although this might be also due to the necessity of such operations to be kept confidential. This emphasizes the need to create learning groups of inspectors from different countries where they can share good practices to identify and build cases that can be successfully prosecuted in their countries.

It has to be noted that illegal trade can be reduced by increasing the awareness of the public on the correct way to dispose of a used appliance. Such campaigns are carried out by PROs, but engagement of the national authorities would also be welcome to increase coverage of the awareness-raising campaigns. It is recommended to share learnings and good practices of awareness campaigns that worked well. Workshop could be organised where these can be presented thoroughly to the corresponding actors in each RIS country.

¹³ IMPEL is an international non-profit association of the environmental authorities of the European Union Member States, acceding and candidate countries of the EU, EEA and EFTA countries and potential candidates to join the European Community.

¹⁴ EWEN is the network of regulatory authorities from EU member states. Its members work together to enforce the legal obligations that apply to authorised representatives across the EU.

In the Czech Republic interviews highlighted that WEEE coming from businesses is not sufficiently controlled, authorities often do not verify whether WEEE arising from professional activities are disposed of at official collection points or if the waste is correctly processed in authorised facilities. Mandatory handover applied in some countries proved to improve the amount of WEEE handled through official channels. (The principle of mandatory handover is that all the WEEE management should be handled by officially authorised PROs.) However, when enforcement is not sufficient, mandatory handover becomes an issue for PROs that do not have the competences to oblige actors to hand them their waste.

Public registers for recyclers and waste collectors

The research shows that registers are in use in all the countries for EEE producers, collectors and treatment facilities. There is however, room for improvement when it comes to the updating of the lists, their searchability and the accessibility to the public.

The Hungarian register of waste actors e.g. do not differentiate between the actors in the different waste streams, the search function is based on EWC codes only which makes the identification of the actors very difficult. It is recommended to keep separate registers for the different types of actors based on their activity and the type of waste streams they are licensed to handle. The registers/lists should be made open to the public to ensure transparency and should be regularly updated.

Public registers should be publicised to the larger public and specially to e-waste generators, so they can make use of them to verify they hire companies with permits.

Banning cash transactions at recyclers

This measure has been applied in some countries as a way to make illegal trading of WEEE more difficult and trading of WEEE traceable. In each countries there are different limits set for cash transactions in general. In the Czech Republic cash transactions are not allowed for metal waste. In Greece all cash transactions, regardless of waste or products, are banned for above 500 euros. In Slovenia in the case of payments for WEEE to natural persons, it is possible to pay in cash upon presentation of the tax number.

Banning of cash transactions for WEEE trade would make illegal trading more difficult and would facilitate tracing of illegally traded WEEE. It is recommended to consider banning cash transactions in all RIS countries and other neighboring countries to avoid flows of WEEE towards countries where cash is allowed. Compile practices describing how countries in the RIS area or outside of it implemented this, share the learnings with the rest of the RIS countries.

Other collection channels:

Door to door collection is offered in Slovenia once a year free of charge by the municipalities, further pick-ups must be paid for by the consumer. In other countries such as Greece, the Czech

Republic and Romania they are organised occasionally. It was also reported that in Romania informal door to door collection takes place where cars are passing the streets picking up unwanted, used appliances.

Greek experts working in the WEEE industry suggested that the door-to door collection can be a good addition to the already existing channels, given that it is organised by municipalities, which provides citizens a higher level of trust when it comes to disposing of their used EEE.

Curbside collection: this type of collection is not recommended as it enhances scavenging of the appliances. In fact this practice was not reported as a regular practice in any of the countries. Information sharing among the relevant stakeholder in the RIS countries with presentation of projects where applications were developed to help citizens find their closest collection points, and where they can call collectors to pick-up their waste would be a recommended action to take.

As an initial step it would be recommended that relevant actors identify all WEEE flows and create return channels for them. A good starting point is to:

- monitor the density of collection points in urban areas, and number of collection points per citizen. Establish objectives for increasing them in the areas where such numbers are lower compared to the collection demand, create synergies with other waste streams (e.g., batteries, waste edible oil, packaging materials) in the collection points in order to maximize the ease of citizens
- identify what happens to B2B equipment, identify the sources of the material and the routes currently followed by the waste. Establish return channels for them.

Regional and national funding schemes for green and circular economy

Setting up more collection points, recycling facilities and new technologies

In most countries there are funds available for the setting up for collection points, waste recycling facilities and in some also for re-use activities. There is a variety of sources where these funds can be applied for, starting with national measures, to regional and EU level funding. A combination of these are available in the different countries. These are the operations, i.e. collection, preparation for re-use and recycling, are the pre-requisites of properly functioning selective collection, recovery of materials and re-use.

Greece, Romania and the Czech Republic sources all confirmed that sufficient infrastructure is indispensable for increasing WEEE collection rates and ensuring proper treatment of WEEE. A Romanian expert expressed his view on the need to increase collection instead of funding for setting up new recyclers, as existing treatment capacities can handle the currently collected amounts.

A good example of increasing collection points is the EU funded LIFE project by ZEOS in Slovenia which included placing collection containers to be on the streets for small WEEE collection to make sure distance to collection points do not inhibit selective collection. They also added re-use corners to the existing municipal collection points where re-useable appliances can be collected and stored separately. The Greek LIFE ReWEEE project set up the first two sorting centers and preparing for re-use facilities in the country with the help of EU funding. Projects like these should not end at this point, they should be replicated in the other countries that are also in need of such infrastructure vital to increasing proper collection, re-use and recycling of WEEE.

In most cases however there are no specific actions promoted for the improvement of the activities taking place at the collection points or the recycling or preparation for re-use facilities. There is much needed training in the area of improving the security of collection points, in preparing trainings for employees working at collection points, recyclers or preparation for re-use organisations.

Authorities and PROs in the RIS countries could be presented the Italian program coordinated by the Centro di Coordinamento RAEE and the French system to improve the number and conditions of collection points. The Italian "Premi di Efficienza" program allows civic amenities meeting certain requirements to get an economic compensation. This initiative is based on a 2012 agreement between National Association of Italian Municipalities (ANCI) and the Italian coordination centre of WEEE (CdC). Collections centres must meet certain criteria to access the compensation, like for example collect WEEE with a low rate of missing parts, have a certain minimum number of opening hours etc.

The French EPR system developed several types of supporting measures to improve the conditions of collection points and in particular protect them against theft and scavenging. Several dispositions are listed in the contract between the PRO and the local authorities to make ensure protection against theft, e.g.:

- The possibility to get one or several locked container(s) for a 6-month period and to assess its efficiency before acquiring it/them.
- The possibility to access a "compensating" subsidy for the protection of WEEE, which depends on the implementation of a diagnostic, reaching a minimum collection rate for cooling and freezing appliances, and marking these appliances.

Trainings

An example to follow can be the ongoing Slovenian EU funded project by ZEOS where repair guides will be created and made available to the public. Similar easy repair guides are already available for certain type of small appliances as a result of the Greek EU funded project LIFE Reweee. Another

good example is an initiative by APPLiA Hungary; the preparation of a curriculum for vocational schools for training »home appliance repair technicians«. It is very much recommended that apart from Slovakia and Czech Republic other RIS countries also include this course in the list of National Training Registers so that schools can offer this course to their students and train such professionals.

A similar initiative took place in Ireland where one of the PROs, WEEE Ireland, The White Goods Association, technical training agency FIT (Fast Track to IT) and the Louth Meath Education and Training Board (LMETB) joined forces to create a new free 'Circular Economy Skills Initiative' white goods repair technician course. This innovative curriculum and career pathway aims to produce enough experts to ensure washing machines, fridges and dishwashers could be given a new lease of life in homes and businesses.

The same kind of training materials or even curriculum for the training of professionals could be developed for those working at WEEE collection points, and employees of recycling facilities and refurbishers. The EU funded »Infocycle« LIFE project developed by a Greek PRO can be cited as a great example for this, where they developed training materials and videos for WEEE treatment facility workers based on the WEEELABEX standards.

Improving knowledge and skills for recyclers and re-use workers can be developed by making use of the materials publicly available from the above mentioned projects and initiatives. Economic incentives for training personnels should be considered. In some countries employers and employees pay a certain percentage of their income towards a fund created to finance trainings. There are trainings which can be paid from these funds, so neither the employer nor the employee have to pay directly for the training. Trainings developed for recyclers, refurbishers or collection companies should be enlisted in the official lists to promote them.

Incentivising the returning of old appliances and the purchase of refurbished products

Interviews and desk research show in general there are no financial incentives offered for people to return their old appliances in the countries of this study. The only exception are the campaigns by governments or producers to encourage citizens to purchase new, energy efficient devices (e.g. in Greece with contribution of EU funds and Hungary). In these campaigns usually a discount is given for the purchase of a new product if an old appliance is returned to the store. In Hungary however consumers do not have to buy an appliance immediately upon the return of an old device, they are given a voucher that can be used for future purchases. The only problem with this system in Hungary according to interviews, is that the amount of the voucher is not high enough, in fact it corresponds to the amount that an illegal trader would be willing to pay for the particular used product.

The recently started EU funded ECOSWEEE LIFE project will investigate and make recommendations on the best methods for small WEEE and batteries collection, including deposit return schemes. The results will be based on actual campaigns run and studies conducted by several PROs in different European countries.

Finance & taxation policies for recycling businesses

Landfilling and illegal acceptors penalties

In many countries the trend is to increase the taxes charged for using landfills to discourage their use and encourage recycling. On the other hand high landfilling costs may result in illegal disposal of waste at non-authorised areas. A good balance of the fees and enforcement need to be set, as too low fees may not encourage the recycling industry to find recovery solutions for materials with low or no value. Regular reporting of the quantities landfilled and volumes treated by recycling facilities, would facilitate spotting wrong disposal of non valuable fractions arising from WEEE treatment.

Additionally an efficient monitoring system for landfill and steel mill facilities could be established in cooperation with the authorities and PROs in order to identify WEEE that should not be destined to these facilities together with wastes such as metal scrap. Immediate measures should be put in place (e.g. fines, periodical banning from operating in order to avoid the repetition and expansion of these practices. This measure, controlling the final point of the illegal shipment of WEEE, could be more easily implemented in cases where there are no funds for a full control of all actors that act illegally. They can easily be revealed if an effective upstream monitoring is in place.

Subsidies for recyclers that meet certain criteria

In the countries in scope a lack of subsidies can be observed in general to support the operations of recyclers. There are however some ongoing initiatives that could be examined further to see their effectiveness. If they are found to encourage selective waste collection, re-use and recycling they could be replicated in other countries.

Subsidies are available mostly the setting up a new facilities (Greece, Romania) or acquiring new technologies (Poland), in other words the investment process is financed but subsidies are not provided to support the long-term operation of the facility. It has to be also noted that in some cases the funds available are not specific to the WEEE operations, but they are also among the beneficiaries that can benefit from the funds.

It is highly recommended that funds and subsidies be given for recyclers and other operators in the WEEE sector based on meeting certain criteria. Such criteria could be set based on the quality of the processes planned and having trained staff on the premises. Subsidies could be linked to certifications such as complying with the CENELEC standards and the commitment to conduct trainings for the employees or even having contracts with authorised PROs to prevent illegal trading of WEEE.

An interviewee in Poland said that public procurement could be another area where the transition to circular business models could change the reality in Poland and encourage producers and service providers to look for solutions in line with the principles of the circular economy.

Subsidies for digitalisation of reporting and documentation of operations

In some countries such as Greece and Romania there are also some subsidies or financial incentives offered for digitalisation of the operations of enterprises. In Slovenia financial incentives, so called Vouchers are offered for those who prepare a digital strategy with the aim of digital transformation their companies.

Digitalised reporting could prevent double-counting of treated WEEE amounts towards different PROs, and can also make the calculation of the recovery and recycling - prepare for reuse rates and the preparation of national statistics more accurate, efficient and timely. Digitalising documentation, e.g. shipping and downstream monitoring ensure transparency and efficient control of the movement of WEEE and material deriving from WEEE many of them are also hazardous waste fractions.

Reduced taxes for recyclers and refurbishers

This incentive has only been found to be applied in Slovenia where recyclers pay 9.5% tax instead of the usual 22%. In no other country do recyclers or preparation for re-use companies get any tax reduction or subsidy to finance their operations. It is recommended to introduce such measures to ensure long-term viability of recycling facilities and refurbishers which work towards creating a circular economy. The incentives however should be linked to certain, pre-defined sustainability criteria.

Using service centres to maximise income from WEEE

RIS countries in the WEEE-Net project could be presented the 'service centre' business model used in the Netherlands. At the so called service centre a »pre-treatment« of the WEEE collected is done where parts of the WEEE is dismantled into fractions that can be sold or destined to downstream acceptors for an increased price compared to only selling the full appliances. The pre-treatment cost is covered by the increase of the value of the fractions generated, as the quality of the fractions to be sold is increased. Such a service centre can be found in Ede, the Netherlands.

Models of territorial value chains that can kick-start recycling

Best practices encouraging re-use

Apart from the above mentioned incentives to increase re-use of discarded appliances, there are further ideas that could be implemented. The aim is to direct discarded products that are still functional away from recycling. This can be done at different points in the life-cycle of a product. The consumer can directly sell or offer its device for someone else to make use of it. There are many platforms that facilitate this however once it reaches a collection point, small percentage will be directed for re-use. The identification of operational devices is quite an important aspect which

can be done by the consumers returning the item and can facilitate the separate collection of such devices.

The above mentioned re-use corners set up in Slovenia are a very good way to store such equipment separately from the broken ones to ensure re-useable equipment is sent to refurbishers. In Switzerland there are shops next to the collection points where functioning appliances can be acquired, this way citizens can buy second-hand appliances right when they return their WEEE and there is logistics costs saved by selling the products in the same place where they are returned.

In Spain some municipal collection points in Madrid set up the [ReMAD](#) initiative to promote reuse through exchange between citizens. The focus is not on WEEE but all kinds of items including WEEE as well. Anyone can leave unused objects or pick up those deposited by other users and give them a second life. It works through a web page in which citizens have to be registered both to contribute objects and to withdraw them. Each participating collection point has a list of available items divided into categories with photos on its website. Participation is based on a point system. These initiatives however must avoid the misuse or access by illicit actors to the waste.

In Greece repair cafes are often organized and give easy access to citizens in order to repair their appliances.