

# RAEE-THINK:

Rethinking Behaviours and Policies in Order to Become Active Players in the Green Revolution



## Final conference of the LIFE WEEE European project 18 May 2021

Streaming live from the auditorium of the Florence Chamber of Commerce

Life WEEE is co-funded by  
LIFE Environmental  
Governance and Information,  
the financial instrument for  
the environment of the European Commission



### 9:00 Institutional greetings

**Clr. Monia Monni**, Councillor for the Environment, circular economy, soil conservation, public works and civil protection, Tuscany Region  
**Dr. Giuseppe Salvini**, Secretary General of the Florence Chamber of Commerce  
**Dr. Simone Gheri**, Director of ANCI Tuscany

### Tools to help municipalities to rethink environmental policies

09:20 **CDC WEEE Initiatives to Support Public Administrations and Businesses**  
Dr. Fabrizio Longoni, CDC WEEE - WEEE Coordination Centre

09:40 **Recovery Plan: Reforms and Investments for Municipal Authorities to Facilitate Ecological Transition and Protection of the Local Area**  
Dr. Leonardo Borsacchi, ARCO-PIN University of Florence

10:00 **New Technologies and Coordination Between Control Bodies to Combat Environmental Offences**  
Com. Federico Romani, Commander of the Municipal Police of Lamporecchio and Larciano

### Information and facilitation for businesses as keys to active involvement

10:20 **Drivers and Obstacles for WEEE Management Following Circular Economy Principles**  
Dr. Natalia Gusmerotti, Sant'Anna School of Advanced Studies

10:40 **Digital Technology to Support Companies with Simplified WEEE Management: The CircolaRAEE Software, Use Cases and Best Practices**  
Dr. Manuela Medoro, Ecocerved

### 11:10 Coffee break



### A comparison between the citizens of today and those of tomorrow

11:30 **WEEE, Treasures to Be Salvaged: An Updated Overview of the Level of Environmental Awareness Among the Public in Tuscany**  
Dr. Pietro Vento, Demopolis Institute

11:50 **Playground @ School: Integrated Design and Play as Tools for Environmental Awareness**  
Barbara Codacci Ph.D., Tuscany Region

12:10 **Second Life: Repair, Recycling and Reuse. Children and the Life Cycle of Electronic Devices**  
Dr. Maria Giulia Nassi, FabLab Florence

### The role of European projects in the green transition

12:30 **The LIFE WEEE project: Information and Communication, the Key Elements for Raising Environmental Awareness**  
Engr. Rosa Schina, ANCI Tuscany

12:50 **The RePLAY Project: Urban mining and Circular Economy**  
Dr. Milena Bigatto, HIT - Trentino Innovation Hub  
Dr. Gianluca Lopez, MUSE - Science Museum  
Dr. Adolfo Villafiorita, Shair.Tech Srl

13:10 **Interreg Europe's SMART WASTE Project: Supporting Innovation in Waste Management**  
Dr. Massimiliano Di Mattia, ARRR - Regional Resources Recover Agency S.p.A


### 13:30 Closing remarks

The event will be streamed in Italian with simultaneous translation in English.

Throughout the event it will be possible to ask questions to the speakers via chat.

The speakers will respond at the end of the speech.

[>> Registration](#)

 I rifiuti di apparecchiature elettriche ed elettroniche (RAEE) quali computer, televisori, frigoriferi e telefoni cellulari costituiscono uno dei flussi di rifiuti con più rapida crescita nell'UE. I RAEE sono una miscela complessa di materiali le cui componenti possono causare grandi problemi ambientali e di salute. Per migliorare la gestione ambientale dei RAEE, contribuire ad un'economia circolare e migliorare l'efficienza delle risorse, è essenziale migliorare la raccolta, il trattamento e il riciclaggio dell'elettronica alla fine del ciclo di vita.

Per affrontare questi problemi, l'UE ha sviluppato una legislazione specifica in materia di RAEE.

La prima direttiva RAEE (2002/96/CE) è entrata in vigore nel febbraio 2003. La direttiva prevedeva la creazione di regimi di raccolta nei quali i consumatori restituiscono gratuitamente i loro RAEE. Questi programmi intendono aumentare il riciclaggio dei RAEE e/o il riutilizzo. Nel dicembre 2008 la Commissione europea ha proposto di rivedere la direttiva per affrontare il flusso di rifiuti in rapida crescita. La nuova direttiva WEEE (2012/19/EU) è entrata in vigore il 14 febbraio 2014.

“Per quanto riguarda i RAEE provenienti dai nuclei domestici, gli Stati membri provvedono affinché: [...] quando forniscono un nuovo prodotto, i distributori si assumano la responsabilità di assicurare che tali rifiuti possano essere resi almeno gratuitamente al distributore, in ragione di uno per uno, a condizione che le apparecchiature siano di tipo equivalente e abbiano svolto le stesse funzioni dell'apparecchiatura fornita. [...] I distributori effettuano la raccolta nei negozi al dettaglio con superficie di vendita di apparecchiature elettriche ed elettroniche (AEE) di almeno 400 m<sup>2</sup> o in prossimità immediata dei RAEE di piccolissime dimensioni (dimensioni esterne inferiori a 25 cm) gratuitamente per gli utilizzatori finali e senza obbligo di acquistare AEE di tipo equivalente, salvo ove una valutazione dimostri che regimi di raccolta alternativa esistenti non siano almeno altrettanto efficaci. Tali valutazioni sono rese pubbliche. I RAEE raccolti sono sottoposti a corretto trattamento. [...]” (articolo 5 della direttiva 2012/19 / UE).



LIFE16 GIE/IT/000645  
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1 settembre 2017 - 31 maggio 2021

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ANCI Toscana - Associazione Nazionale Comuni Italiani  
ANCI Toscana - Italian National Association of Municipalities - Tuscany



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life  
weeee

Rifiuti di apparecchiature  
elettriche ed  
elettroniche (RAEE):  
tesori da recuperare!

Waste Electrical  
and Electronic  
Equipment (WEEE):  
treasures to recover!





## Aims - Obiettivi

🇬🇧 LIFE WEEE aims to **maximize the collection of WEEE** in Tuscany through a new governance model based on the involvement of SMEs and awareness raising activities towards citizens and its **replication and testing in Andalucía**.

🇮🇹 LIFE WEEE si pone l'obiettivo di **aumentare e migliorare la raccolta di RAEE** in Toscana attraverso un nuovo modello di governance basato sul coinvolgimento delle PMI, le attività di sensibilizzazione verso i cittadini e la **replicazione ed il test di queste attività in Andalusia**.

## Principal measures - Azioni Principali

🇬🇧 The establishment of a permanent regional technical committee, bringing together institutions to foster collaboration

- The development and deployment of the LIFE WEEE APP to allow citizens to locate nearby electronic waste collection points
- The development and distribution of the CircolaRAEE software, which aims to help companies to simplify the administrative activities related to the management of WEEE
- Organising training seminars for companies on the proper management of WEEE and on the compulsory bureaucratic procedures for the collection and transport of electronic waste
- Providing best practices to municipal authorities to improve the services they offer to citizens as well as their public communication regarding the issue of the correct disposal of WEEE
- The development of educational material and implementation of environmental education initiatives for primary and high schools in Tuscany and Andalusia
- The adaptation and transfer of the governance model developed in Tuscany to the region of Andalusia

🇮🇹 Istituzionalizzazione di un Tavolo tecnico Regionale Permanente tra le istituzioni per favorire la collaborazione

- Sviluppo e divulgazione dell'APP LIFE WEEE per consentire ai cittadini la localizzazione dei punti di raccolta di rifiuti elettronici sul territorio
- Sviluppo e divulgazione del Software CircolaRAEE dedicato alle imprese per la semplificazione delle attività amministrative legate alla gestione dei RAEE
- Organizzazione di seminari formativi per le imprese relativi alla corretta gestione dei RAEE ed alle procedure burocratiche obbligatorie per la raccolta ed il trasporto dei rifiuti elettronici
- Divulgazione di buone pratiche alle amministrazioni comunali per potenziare i servizi offerti ai cittadini e la

comunicazione sul tema del corretto smaltimento dei RAEE

- Progettazione di materiale divulgativo ed esecuzione di iniziative di educazione ambientale per le scuole primarie e superiori in Toscana ed Andalusia
- Adattamento e trasferimento del modello di governance sviluppato in Toscana alla regione dell'Andalusia

## Results achieved - Risultati raggiunti

🇬🇧 39% increase in WEEE collection rate per capita in Tuscany from 6.4 kg per inhabitant (2016) to 7.99 kg per inhabitant (2020).

- The facilitation of the exchange of information between institutions thanks to the establishment of the Regional Technical Committee on WEEE.
- The participation of 48,000 companies in Tuscany and Andalusia operating in the distribution and installation of electronic equipment through outreach activities and seminars.
- The involvement of all the Municipalities in the Tuscany Region in outreach activities aimed at improving the quality and distribution of information on WEEE available to citizens and identifying facilitation tools for businesses.
- The training of more than 1,000 companies in the use of the CircolaRAEE software for the simplification of documentation related to WEEE management.
- The training of more than 1000 high school children in Tuscany and the circulation of teaching materials to 500 directors of schools at all levels. In Andalusia there have been meetings at 20 schools and 2000 primary school children took part.

🇮🇹 Incremento del 39% del tasso di raccolta pro-capite di RAEE in Toscana passando da 6,4 kg/ab (2016) a 7,99 kg/ab (2020).

- Facilitazione dello scambio di informazioni tra le istituzioni grazie all'istituzionalizzazione del Tavolo Tecnico Regionale sui RAEE.
- Coinvolgimento di 48.000 imprese in Toscana ed Andalusia che operano nella distribuzione ed installazione di apparecchiature elettroniche mediante seminari informativi ad attività di comunicazione.
- Coinvolgimento di tutti i Comuni della Regione Toscana in attività di informazione finalizzate a migliorare la qualità e la diffusione delle informazioni sui RAEE a disposizione dei cittadini e individuare strumenti di facilitazione per le imprese.
- Formazione di più di 1.000 imprese all'uso del software CircolaRAEE per la semplificazione della documentazione legata alla gestione dei RAEE.
- Trasferimento con successo del modello di governance in Andalusia.

	2020	TUSCANY	ANDALUCÍA
Total WEEE collected (kg)		29,372,244	47,000,000
Average per capita (kg/inh)		7.99	5.67
Variation 2020 Vs 2016		39 %	31 %
Total population		3,668,333	8,427,000
Collection centers		204	224
Other centers		72	1246
Conferment centers /100,000 inh		6	1

🇬🇧 *Waste of electrical and electronic equipment (WEEE) such as computers, TV-sets, fridges and cell phones is one of the fastest growing waste streams in the EU. WEEE are made by heterogeneous materials whose components can cause huge environmental and health problems, if not properly managed. To improve the environmental management of WEEE and to contribute to a circular economy and enhance resource efficiency the improvement of collection, treatment and recycling of these waste at the end of their life is essential. To address these problems EU developed specific legislation on WEEE.*

*The first WEEE Directive (2002/96/EC) entered into force in February 2003. The Directive provided for the creation of collection programs where consumers return their WEEE free of charge. These programs aim to increase the recycling of WEEE and/or re-use. In December 2008, the European Commission proposed to revise the Directive in order to tackle the increasing of this waste stream. The new WEEE Directive (2012/19/EU) became effective on 14 February 2014.*

*“For WEEE from private households, Member States shall ensure that [...] when supplying a new product, distributors are responsible for ensuring that such waste can be returned to the distributor at least free of charge on a one-to-one basis as long as the equipment is of equivalent type and has fulfilled the same functions as the supplied equipment. [...] Distributors provide for the collection, at retail shops with sales areas relating to EEE of at least 400 m<sup>2</sup>, or in their immediate proximity, of very small WEEE (no external dimension more than 25 cm) free of charge to end-users and with no obligation to buy EEE of an equivalent type, unless an assessment shows that alternative existing collection schemes are likely to be at least as effective. Such assessments shall be available to the public. WEEE collected shall be properly treated.[...]” (article 5 of Directive 2012/19/EU).*



Rifiuti di apparecchiature  
elettriche ed  
elettroniche (RAEE):  
*tesori da recuperare!*

Waste Electrical  
and Electronic  
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## LAYMAN'S REPORT

# WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT: TREASURES TO RECOVER!

LIFE WEEE - LIFE 16 GIE/IT/000645  
2017 - 2021



# PROJECT SUMMARY

## **Project Title:**

Waste Electrical and Electronic Equipment: Treasures to recover!

## **Project Acronym:**

LIFE WEEE - LIFE16 GIE/IT/000645

## **Coordinating Beneficiary:**

ANCI Tuscany

## **Associated Beneficiaries**

Tuscany Region

Chamber of Commerce of Florence

Chamber of Commerce of Seville

Department of Industrial Engineering, University of Florence

Department of Industrial Engineering, University of Florence, UNIFI- DINFO

ECOCERVED limited liability consortium company

## **Project duration**

45 months

## **Start date**

01/09/2017

## **End date**

31/05/2021

## **Project Budget**

1,850,602 €

## **EC Contribution**

1,101,604 €

## **Beneficiaries' contribution**

748,998 €

## **Website**

<https://www.lifeweee.eu>

## **Facebook page**

<https://www.facebook.com/LifeWeee>

## **Instagram page**

<https://www.instagram.com/lifeweee/>

# INTRODUCTION

This report was produced as a part of the LIFE WEEE project (LIFE16 GIE / IT / 000645) - Waste Electrical and Electronic Equipment: Treasures to recover!, co-financed by the LIFE Program of the European Community, and aims to demonstrate, in addition to the objectives and results of the project, how the integrated governance model that has been developed can lead to long-term environmental benefits.



## PROJECT AIMS AND OBJECTIVES

Waste Electrical and Electronic Equipment (WEEE), such as computers, televisions, refrigerators and mobile phones, makes up one of the fastest growing waste streams in the EU. WEEE consists of a collection of diverse materials whose components can cause major environmental and health problems if not managed correctly. To improve the environmental management of WEEE, contribute to a circular economy and improve resource efficiency, it is essential to improve the collection, treatment and recycling of this waste at the end of its life cycle.

WEEE represents a key source of **raw materials**, which can be **reclaimed if managed correctly**. WEEE recovery targets are far from being achieved in Italy and in the rest of the European Union, although Tuscany is one of the best performing areas in Italy in terms of separate waste collection. The culture of waste separation is widespread and represents an appropriate framework in which new and more extensive methodologies and governance models can be tested in order to improve the WEEE collection system.



The analysis of the Tuscan regional context, which was carried out prior to the project, made clear the need to address some key issues in order to achieve the objectives set by Directive 2012/19/EU and highlighted the principle targets of these measures:

- **Citizens**/consumers lack sufficient knowledge about the handling and disposal of WEEE;
- **Businesses** involved in the installation or distribution of electrical and electronic equipment are not very involved in its collection and encounter difficulties in fulfilling the bureaucratic and administrative procedures required by the legislation for the management of WEEE;
- The lack of educational and publicity activities about WEEE on the parts of institutions and other relevant actors undermines the participation of consumers in the collection, re-use, treatment and recovery of WEEE.



The project's activities aimed to provide tools that facilitate and incentivize behavioural change. In summary, the project had the following objectives

- To improve the regional governance model with the aim of encouraging citizens and businesses to manage WEEE collection more carefully and to promote collaboration and information exchange between institutions, as required by Article 18 of Directive 2012/19/EU;
- To support local administrations with training and outreach activities for institutional actors in order to improve services for citizens;
- To develop a system of **services and incentives for SMEs**, with the creation of a green network of SMEs as a widespread system of collection points;
- To develop IT tools for businesses and citizens: **software** and **guidelines** for simplifying the administrative and bureaucratic processes that businesses must carry out to enable the collection of WEEE on their premises and an **app** that will allow users to easily identify the nearest collection sites;
- To conduct an **awareness-raising campaign** to increase public understanding of the issue and provide adequate information to citizens and businesses;
- To test the **replicability and transferability** of the project's results through the implementation of measures in Andalusia.



# WHY A WEEE PROJECT: ENVIRONMENTAL AND ECONOMIC DAMAGE DUE TO IMPROPER DISPOSAL OF WEEE

It is called WEEE (Waste Electrical and Electronic Equipment). It is what remains of household appliances, both large and small, and objects that accompany us in our daily life, such as PCs and mobile phones, after they stop working.



As a result of rapid technological innovations, WEEE is growing at a worrying rate: on average three times faster than that of the normal municipal solid waste we produce every day. The risk is that these often-hazardous waste products will end up dispersed in the environment or not properly dealt with. This would lead to the pollution of our habitat and to missing out on the retrieval of important materials, including precious metals, which are reusable in production processes. The production of electrical and electronic equipment requires a complex mixture of components, including many precious metals, the extraction and processing of which is a major source of pollution. The environmental impact of their production, both in terms of energy and raw materials, is therefore considerable. Furthermore, the main problem with WEEE is the high number of substances and components which are hazardous to the environment and to human health. There is a definite need for the careful management of this class of waste, an approach which simultaneously seeks to maximize the recovery of components and the safe disposal of the non-recoverable portion, while meeting environmental protection targets, saving energy and natural resources and reducing the amount of waste to be disposed of citizens who decide to get rid of an electronic device can dispose of it at municipal collection points or at distribution outlets, either when purchasing new equipment, or even without making a new purchase (EEE with max size < 25 cm).



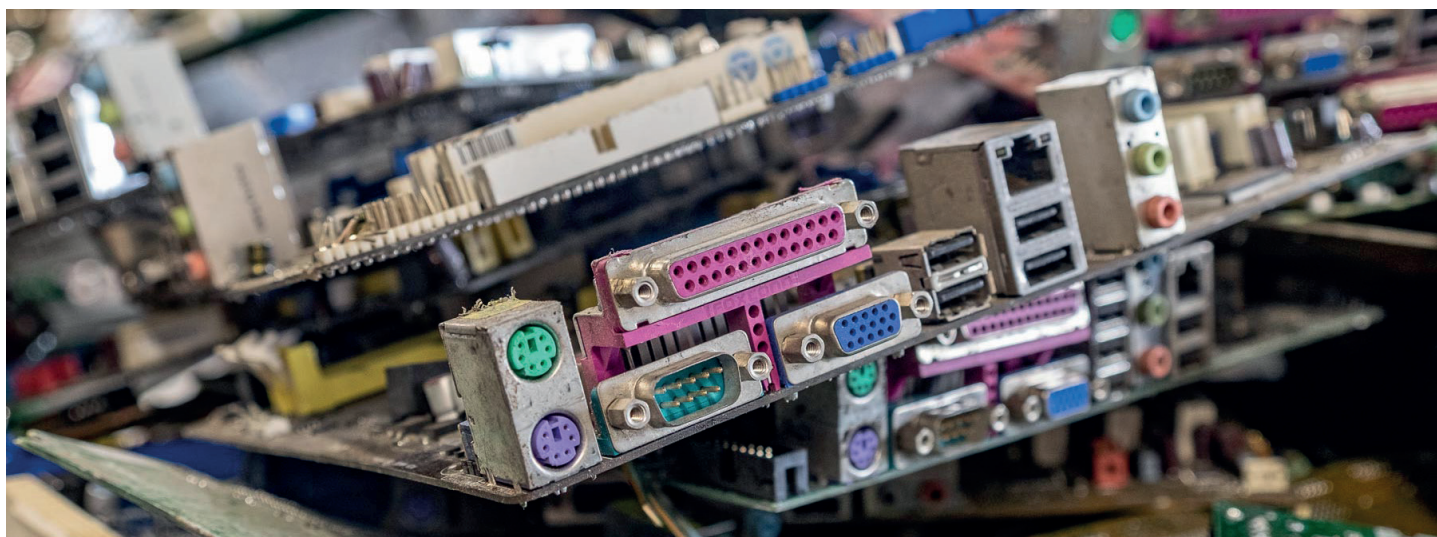
A modern electronic device can contain over 60 elements and therefore these types of waste, in addition to containing material that can be recovered as raw materials or energy sources, contain dangerous substances that must be treated and disposed of safely.

Every year in Italy, 421,344 tons of WEEE — i.e. waste electrical and electronic equipment — are processed, three quarters of which is household waste and one quarter of which is professional waste. However, a significant part of this amount is cannibalized: it is estimated that over 19 thousand tons of components are stolen every year, often disappearing from collection centres and illegally resold on the market.

The damage is considerable, both economically and environmentally, and undermines the achievement of recycling targets. As for the economic damage, at the European level the total general losses from cannibalization actually amount to about 170 million euros per year, while in Italy, according to the Assoraee study, they exceed 14 million euros.

Then there is the environmental impact of cannibalization, which manifests itself in many ways. The removal of compressors from refrigerators and freezers causes the most damage, as the gases used in the refrigeration circuits are released into the atmosphere, particularly those containing ozone-depleting substances, such as CFCs and HFCs. In terms of total number of refrigerators and freezers bought in 2018, the ozone-depleting substances they contain amount to more than half a million tons of CO<sub>2</sub>, equivalent to the emissions of over 300,000 small cars. Another hazard is the dispersion of mercury, due to the cannibalization of flat screens. Furthermore, there is a real risk of dissipation when it comes to the CRM (Critical Raw Materials) contained in batteries, electronic circuit boards and other components.

A large proportion of electronic waste is illegally exported, mainly to developing countries. According to the UN report, it can be assumed that the volume of cross-border movements of electronic waste varies between 7% and 20% of the total amount of electronic waste generated. In this sector, there are all different kinds of criminality: from occasional polluters, such as basement cleaners who gather everything up and then the dump waste on the street or in the landfill, through mafia-type organized crime, up to more purely entrepreneurial crime. The main routes highlighted in the investigations conducted by the Carabinieri per la tutela ambientale lead to sub-Saharan Africa, in particular Kenya, Senegal and Burkina Faso. Other destination countries are those of the Maghreb, along with some routes through the east to Turkey and Pakistan.





## WHAT WE HAVE DONE: THE INTEGRATED GOVERNANCE MODEL PROPOSED BY THE PROJECT

Beginning from the realisation that not only most citizens, but also most institutions, pay little attention to the issue of electronic waste, the project partners have implemented a series of activities to increase awareness on the proper disposal of WEEE. At the beginning of the project, surveys were carried out to assess the levels of knowledge citizens had on the proper practices for disposal of WEEE. Businesses were also assessed on electronic waste management. In both cases, a lack of adequate knowledge was observed, partly due to limited communication efforts by institutions and private entities operating in various capacities in the WEEE management chain.

The project was therefore an opportunity to trial an integrated governance model to increase the collection of electronic waste in the two target areas, the Tuscany Region and Andalusia. By governance model, we mean an integrated set of activities carried out simultaneously and addressed to all project target groups (citizens, schools, businesses, institutions, control bodies), i.e. those whose behaviour we want to change in order to achieve results at the level of the entire system.

Activities have therefore been planned and implemented:

- TRAINING;
- FACILITATION;
- INFORMATION;
- COMMUNICATION.





ACTIVITIES	TARGET	OBJECTIVES
TRAINING	BUSINESSES	<ul style="list-style-type: none"> <li>How the collection and transport of WEEE is managed</li> <li>What are the compulsory bureaucratic and administrative requirements</li> </ul>
	CIVIL SERVANTS	<ul style="list-style-type: none"> <li>How to become an opinion leader to raise awareness among the public</li> <li>Strategies for improving communication with the public</li> </ul>
	CONTROL BODIES (MUNICIPAL POLICE)	<ul style="list-style-type: none"> <li>What are the environmental crimes related to WEEE and how should they be dealt with</li> </ul>
INFORMATION	CITIZENS	<ul style="list-style-type: none"> <li>Raising awareness on how to dispose of WEEE through press, radio and social media campaigns</li> </ul>
	BUSINESSES	<ul style="list-style-type: none"> <li>Awareness-raising on proper WEEE management through information brochures</li> </ul>
	SCHOOLS	<ul style="list-style-type: none"> <li>Production and distribution of a kit for primary schools featuring fun activities to help educate children about recycling</li> <li>Organization of workshops on the reuse of electronic devices for high school students</li> </ul>
FACILITATION	CITIZENS	<ul style="list-style-type: none"> <li>Locate the nearest WEEE collection point thanks to the LIFE WEEE APP which also allows you to quantify the environmental benefit generated by your behaviour</li> </ul>
	BUSINESSES	<ul style="list-style-type: none"> <li>Facilitate the management of compulsory documents for WEEE collection through the CircolaRAEE software</li> </ul>
COMMUNICATION	INSTITUTIONS	<ul style="list-style-type: none"> <li>Ensure dialogue between institutions by means of technical committees and also continuous discussions geared towards optimizing the collection network</li> </ul>

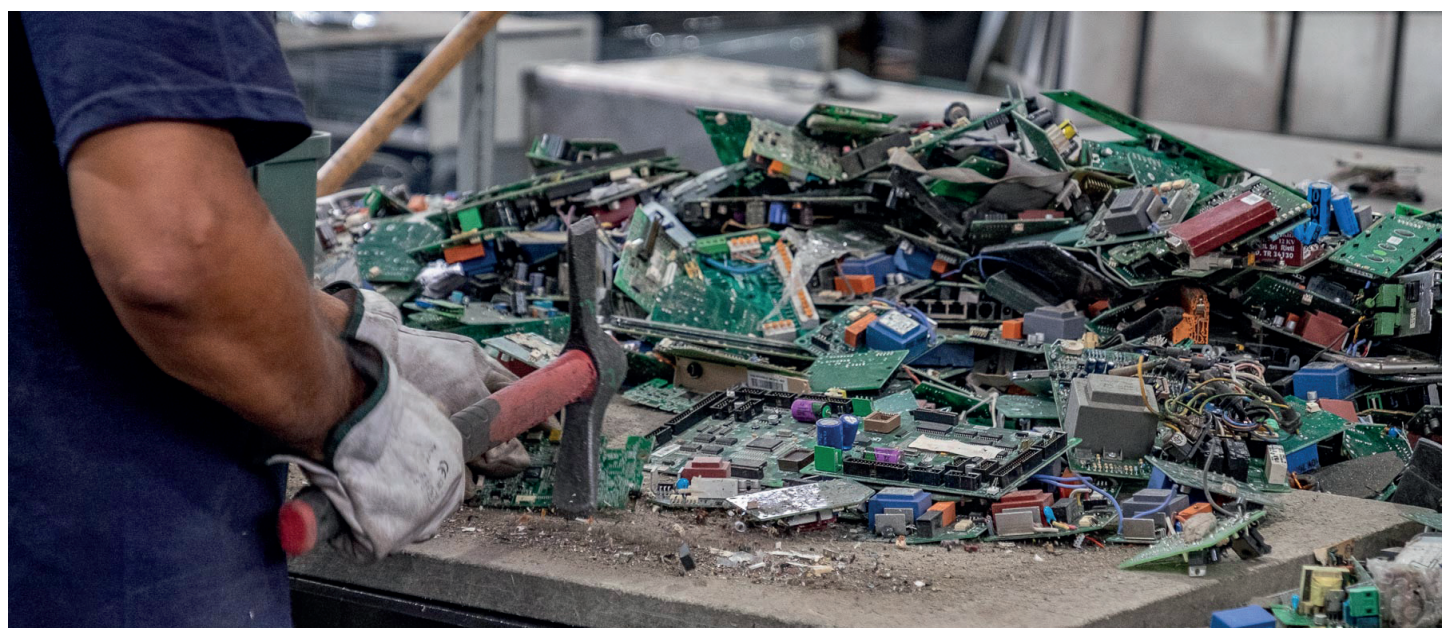


## WHERE WE OPERATED: TUSCANY AND ANDALUSIA

The project's activities covered the Tuscany region in Italy and the region of Andalusia in Spain, covering an area of approximately 12,000,000 inhabitants.

### The initial context in Tuscany

In 2016, Tuscany had a per capita collection rate higher than the national average (in Italy), but was still far from the collection targets established by EU Directive 2012/19 (WEEE Directive). The aim of this project was to increase this collection rate by at least 30%. In order to achieve this increase, the intention was to work on the one hand with citizens to inform them about the disposal of WEEE and on the other hand with companies operating in the distribution, installation and repair of electrical and electronic equipment to increase knowledge about the bureaucratic obligations related to the management of electronic waste, reaching at least 50% of businesses in the area.



### Overview of the Andalusian Context at the Beginning of the Project

According to data compiled by Spanish Extended Producer Responsibility Collective Systems (SCRAP) the region of Andalusia collected a total of 43 million kilograms of WEEE in 2017, only 5,12 kg per capita. In Andalusia the municipal authorities are responsible for WEEE collection and disposal, as for other urban waste. Consumers may donate EEE for re-use or second-hand establishments; or dispose of it as WEEE in appropriate collection facilities set up by Local Authorities, distributors, registered waste management operators or the collection networks of EEE producers.

Furthermore, at the beginning of the project in 2017, there were 224 “Clean collection points” for WEEE in Andalusia established by the Local Authorities, in addition to the private distributors who were obliged to collect the WEEE. However, it was estimated that around 80 % of WEEE was not collected or properly recycled, due to the following obstacles:

- Low awareness among the general public, a lack of awareness as to the existence of collection points or their locations;
- An insufficient amount of collection points: being a large rural territory, collection in Andalusia is more difficult and expensive due to the distances and scale;
- Collection points in shops were not effective enough due to lack of adequate information and small and medium EEE were rarely collected, because people tend to buy new equipment without taking in their old EEE;



- Incidences in the WEEE chain between collection points and recyclers where parts of WEEE are lost due to “cannibalisation” or shipped to developing countries, due to a lack of transparency and controls;
- The complexity and diversity of the sectors involved in WEEE management: these include the producers of very different products, the different types of waste collection operators and the multiple actors involved in WEEE storage and treatment;
- Inaccuracies or omissions in the previous legislation leading to different interpretations and implementations, as well as to a marked lack of precision in the basic applicable criteria;
- Difficulties experienced by competent authorities in obtaining and controlling complete data on WEEE, partly due to the lack of a consistent national accounting and traceability system.



## Levels of Awareness Among Citizens, SMEs and Institutions

In 2018, a survey was conducted by the Chamber of Commerce of Seville across Andalusia in order to ascertain the extent to which Andalusians recycle and if they are aware of the existence of Waste Electrical and Electronic Equipment (WEEE).

The surveys showed that the topic of WEEE was not familiar to most Andalusians, largely due to the lack of information provided by both authorities and distributors. Andalusians were not familiar either with the meaning of the acronym WEEE and the relevant legislation or with the existence of collection points. However, there was a general desire to change these perceptions, as Andalusians reacted quite positively to the idea of creating websites or smartphone apps containing information on recycling and collection points.

Examining the data, Almería was the Andalusian province in which people were the most aware (2.95/5) of the importance of recycling and of disposing of WEEE in a responsible manner. On the other hand, the lowest awareness rates were registered in the province of Cádiz (1.82/5). In terms of age, people between 45 and 55 years old were the most sensitive on the importance of recycling (2.79/5). Surprisingly, however, people under 25 years old came second (2.72/5), so there were reasons to hope for positive change in the future.



During the year in question, WEEE collection rates in Andalusia were still far from meeting the objectives set by the EU. However, results showed that Andalusians were willing to get involved and make contributions towards change, and that positive attitudes, along with the cooperation and exchange of best practices with other European regions, will doubtlessly have a significant impact on WEEE recycling in the future.

At the same time another study was conducted in order to find out the level of legal awareness by the business community involved in dealing with EEE. This survey was distributed amongst the specialised network formed by the Andalusian Federation of Electronic and Electrical Equipment.

One of the most remarkable results was that 25% of these businesses were not aware of the specific regulations although they regularly managed EEE. Over a quarter of the companies that did know about the legislation considered it hard to follow and apply. The difficulties encountered in this context were to do with the number of documents it is necessary to collect and conserve, together with the excessive bureaucratic requirements.

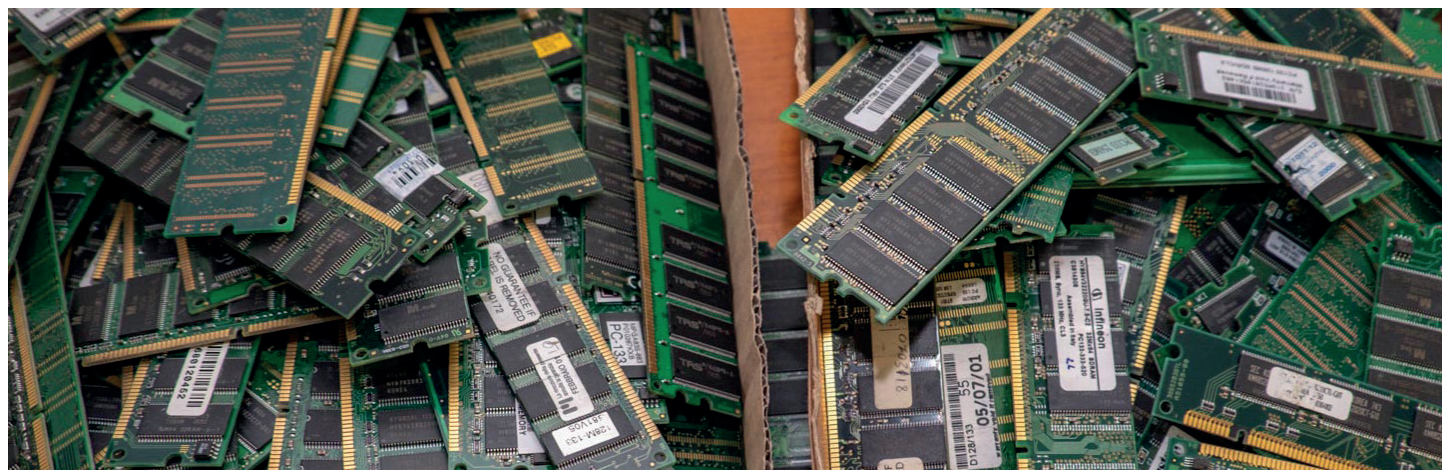
Another topic to emphasise is the place of WEEE collection by these appliance shops. Collection mostly occurs at the customers' address, followed by the option of the shop floor.

## Distribution of WEEE Collection Points Across the Region

According to the database of the Regional Ministry for the Environment of Andalusia, there were a total of 637 SMEs involved in WEEE collection in 2018. The Northwest of Andalusia represented 75% of the total of small and medium-sized enterprises involved in WEEE management. The province at the top of the list was Seville with 314 SMEs, followed by Córdoba, Huelva, Cádiz and Málaga with a total of 111, 51, 47 and 47 SMEs, respectively. The Eastern Provinces of Andalusia had 67 SMEs in total, made up of 42 in Granada, 16 in Jaén and 9 in Almería.

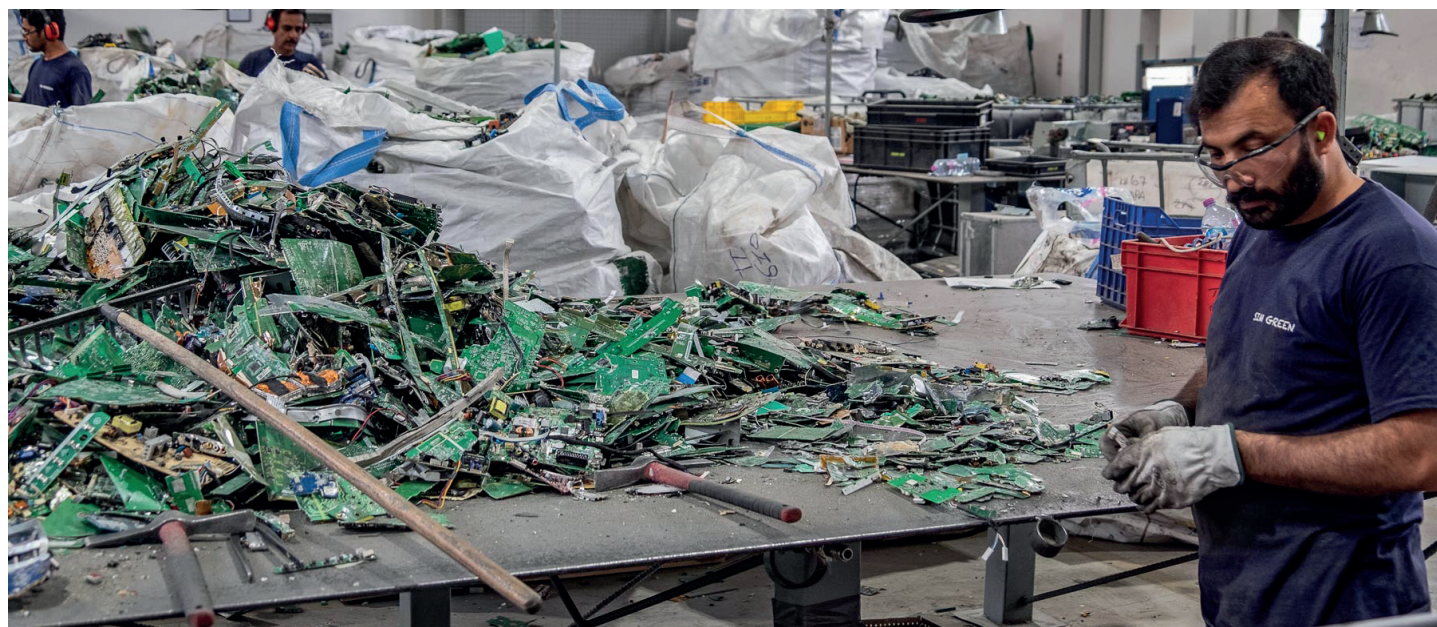


2016	Toscana Tuscany	Andalusia Andalucía
Totale RAEE raccolti (kg) Total WEEE collected (kg)	23,955,070	56,186,176
Media Pro Capite (kg/ab) Average per capita (kg/inh)	6.4	4.5
Variazione 2015 Vs 2016 Variation 2015 Vs 2016	12.64 %	38.7%
Popolazione totale Total population	5,744,598	8,588,107
Centri di raccolta Collection centers	209	224
Altri centri Other centers	41	8
Centri di conferimento per 100.000 ab Conferment centers/100,000 inh	6	1



## WHAT IT HAS LED TO: MAIN PROJECT RESULTS AND OUTCOMES

- Implementation of a regional governance model based on an ecosystem of information, training and communication activities aimed at citizens, businesses and local administrators to encourage the correct disposal of WEEE;
- Establishment of a permanent technical committee to promote collaboration and information exchange between institutions;
- Provision of training and information courses aimed at Public Administrations to provide guidance on strategies to promote responsible and environmentally aware behaviour on the part of citizens;
- Provision of training courses for businesses to improve their knowledge of the regulatory obligations related to the collection and transport of WEEE;
- Organization of environmental education campaigns for primary and secondary schools;
- Creation of a Green Network of companies that are engaged in and informed about the correct management of WEEE;
- Development of the CircolaRAEE software for businesses to help simplify the administrative tasks related to the management of WEEE thanks to the automatic digital generation of the compulsory documentation for the collection and transport of electronic waste;
- Development and dissemination of the LIFE WEEE App for citizens to locate their nearest WEEE collection point (Municipal Collection Centres, one-against-one points, one-against-zero points);
- Implementation of awareness-raising campaigns involving new media (social networks) and traditional media (television, posts, information brochures) aimed at citizens and businesses in order to increase the profile of the issue;
- Participation in events at a national and international level to disseminate the project's objectives and to broaden the scope of the communication campaign outside the regional context (Ecomondo, Didacta, ...);
- Validation of the replicability and transferability of project results through the implementation of actions in Andalusia.



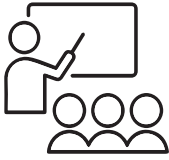


## FOR CITIZENS

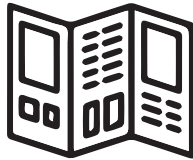
Information campaigns on where and how to dispose of weee

App to find the nearest collection point

## FOR BUSINESSES



Training courses to learn about regulatory obligations for the collection and transport of weee



Brochures and information guides on what it takes to be compliant



Software for the simplified management of weee collection and transport documentation

## FOR PUBLIC ADMINISTRATION



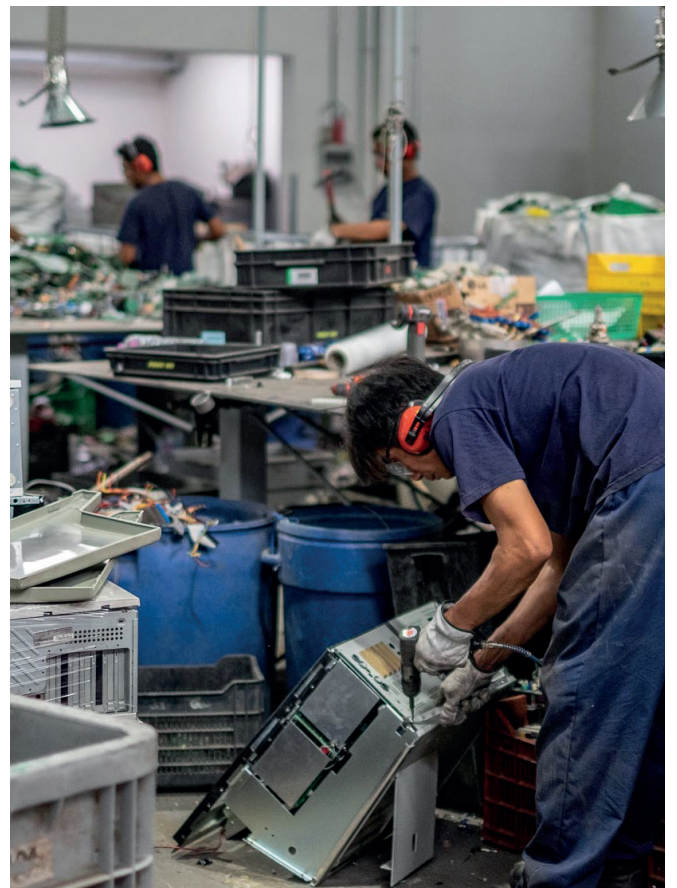
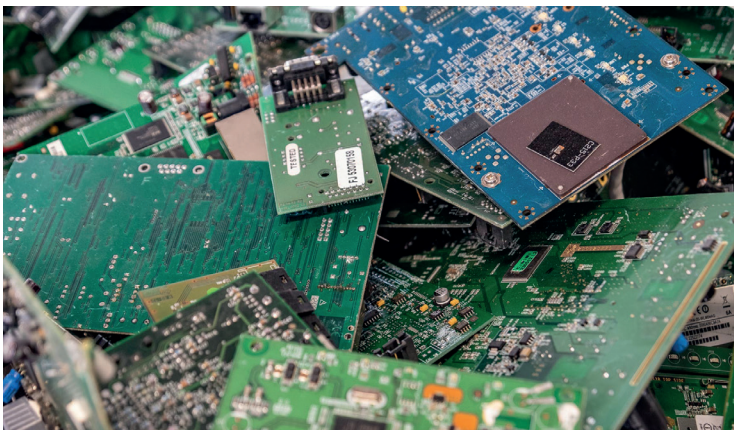
Awareness-raising courses to improve communication with citizens concerning the proper disposal of weee



Technical committee of institutions to facilitate dialogue and improve the quality of services offered to citizens



Material to facilitate awareness-raising initiatives for citizens on the theme of weee





## **WHY WE DID IT:**

### **ENVIRONMENTAL BENEFITS AND SOCIAL IMPACT IN THE MEDIUM AND LONG TERM**

#### **ENVIRONMENTAL BENEFITS OVER THE 3 YEARS OF THE PROJECT**

+ 39% WEEE collected and sent for treatment and recovery, equivalent to 88,000 tons, equal to 2.4 times the weight of the Dome of the Florence Cathedral

##### **Recovered**

**42.000** tons of metals

**18.000** tons of plastic

**6.200** tons of copper

**4.800** tons of glass

**4.000** tons of aluminium

**2.700** tons of printed circuits

##### **Savings**

**880.000** tons of CO<sub>2</sub>

**1.320.000** m<sup>3</sup> of water

#### **SOCIAL IMPACTS OVER THE 3 YEARS OF THE PROJECT**

+ **5.000.000** citizens informed about the correct disposal of electronic waste

+ **40.000** companies made aware of incorrect behaviours in terms of non-compliant WEEE management

+ **2.000** primary school students educated on separate collection and the proper disposal of WEEE

+ **400** secondary school children trained in green jobs

+ **200** Municipal Administrations will enhance their communication initiatives and the quality of services provided to citizens



life weee





Life WEEE is co-funded by  
LIFE Environmental  
Governance and Information,  
the financial instrument for  
the environment of the European Commission





Rifiuti di apparecchiature  
elettriche ed  
elettroniche (RAEE):  
*tesori da recuperare!*

Waste Electrical  
and Electronic  
Equipment (WEEE):  
*treasures to recover!*

## WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT: TREASURES TO RECOVER!

LIFE WEEE - LIFE 16 GIE/IT/000645  
2017 - 2021



# PROJECT SUMMARY

## **Project Title:**

Waste Electrical and Electronic Equipment: Treasures to recover!

## **Project Acronym:**

LIFE WEEE - LIFE16 GIE/IT/000645

## **Coordinating Beneficiary:**

ANCI Tuscany

## **Associated Beneficiaries**

Tuscany Region

Chamber of Commerce of Florence

Chamber of Commerce of Seville

Department of Industrial Engineering, University of Florence

Department of Industrial Engineering, University of Florence, UNIFI- DINFO

ECOCERVED limited liability consortium company

## **Project duration**

45 months

## **Start date**

01/09/2017

## **End date**

31/05/2021

## **Project Budget**

1,850,602 €

## **EC Contribution**

1,101,604 €

## **Beneficiaries' contribution**

748,998 €

## **Website**

<https://www.lifeweee.eu>

## **Facebook page**

<https://www.facebook.com/LifeWeee>

## **Instagram page**

<https://www.instagram.com/lifeweee/>

# INTRODUCTION

This document originates from the LIFE WEEE project (LIFE16 GIE / IT / 000645) - Waste Electrical and Electronic Equipment: Treasures to recover!, co-financed by the European Community's LIFE Programme, and aims to provide a complete overview of the measures that the beneficiaries intend to carry out in the 5 years following the conclusion of EU economic support, with a view towards continuing to promote the results of the project and to disseminate the "lessons learnt".

Specifically, the objectives of this scheme are:

- To continue to disseminate the project's goals and results in order to ensure distribution to an increasingly wide audience on a national and international scale;
- To provide guidelines containing best practices for the implementation of the governance model developed by the project;
- To develop networking with other funded projects further in order to build on the project's experience;
- To promote the replication of the governance model in other regional contexts

## PROJECT AIMS AND OBJECTIVES

Waste Electrical and Electronic Equipment (WEEE), such as computers, televisions, refrigerators and mobile phones, makes up one of the fastest growing waste streams in the EU. WEEE consists of a set of diverse materials whose components can cause major environmental and health problems if not properly dealt with. To improve the environmental management of WEEE, contribute to a circular economy and improve resource efficiency, it is essential to improve the collection, treatment and recycling of this waste at the end of its life cycle.

WEEE represents a key source of raw materials, which can be recovered if handled correctly. WEEE recovery targets are far from being achieved in Italy and in the rest of the European Union, even though Tuscany is one of the best performing areas in Italy in terms of separate waste collection. The culture of waste separation is widespread and represents an appropriate framework in which new and more extensive methodologies and governance methods can be tested to improve the WEEE collection system.

The analysis of the Tuscan regional context, which was carried out prior to the project, made clear the need to address some key issues to achieve the objectives set by EU Directive 2012/19 and highlighted the principle targets of these measures:

- Citizens/consumers lack sufficient knowledge about the handling and disposal of WEEE;
- Businesses involved in the installation or distribution of electrical and electronic equipment are not very involved in its collection and face complicated bureaucratic procedures for the management of WEEE;
- The lack of outreach and publicity activities about WEEE on the parts of institutions and other relevant actors undermines consumer participation in the collection, re-use, treatment and recovery of WEEE.



The project's activities aimed to provide tools that facilitate and incentivize behavioural change. In summary, the project had the following objectives:

- To improve the regional governance model with the aim of encouraging citizens and businesses to manage WEEE collection more carefully and to promote collaboration and information exchange between institutions, as required by Article 18 of Directive 2012/19/EU.
- To support local administrations with training and educational activities for institutional actors in order to improve services to citizens.
- To develop a system of services and incentives for SMEs, with the creation of a green network of SMEs as a wide-spread system of collection points.
- To develop IT tools for businesses and citizens: software and guidelines for simplifying the administrative and bureaucratic processes that businesses must carry out to enable the collection of WEEE on their premises and an app that will allow users to easily identify the nearest collection sites.
- To conduct an awareness-raising campaign to increase public understanding of the issue and To test the replicability and transferability of the project results through the implementation of measures in Andalusia

## **PRINCIPLE RESULTS AND OUTCOMES OF THE PROJECT**

The project has achieved all its objectives, leading to the following primary outcomes:

- Implementation of a regional governance model based on an ecosystem of information, training and publicity activities addressed to citizens, businesses and local administrators to encourage the proper disposal of WEEE;
- Establishment of a permanent technical committee to promote collaboration and information exchange between institutions;
- Provision of training and information courses for Public Administrations to provide guidance on strategies to promote responsible and environmentally friendly behaviour on the part of citizens;
- Provision of training courses for businesses to improve their knowledge on the regulatory obligations relating to the collection and transport of WEEE;
- Creation of a Green Network of companies that are engaged in and well-informed about the correct management of WEEE;
- Development of the CircolaRAEE software for businesses to help simplify the administrative and bureaucratic obligations related to the management of WEEE thanks to the automatic digital generation of the mandatory documentation for the collection and transport of electronic waste;
- Development and dissemination of the LIFE WEEE App to help citizens to locate their nearest WEEE collection point (Municipal Collection Centres, one-against-one points, one-against-zero points);
- Implementation of awareness-raising campaigns involving new media (social networks) and traditional media (television, posters, information brochures) aimed at citizens and businesses in order to increase the profile of the issue;
- Participation in events at a national and international level to disseminate the project's objectives and to broaden the scope of the communication campaign outside the regional context (Ecomondo, Didacta, ...);
- Validation of the replicability and transferability of the project results through the implementation of measures in Andalusia.

## AFTER-LIFE COMMUNICATION PLAN

The activities of the After-Life Communication Plan, which will be detailed below in terms of budget, can be broken down into the following lines of work:

- Continuous dissemination of materials produced by the project (Info Kits, Brochures, Guidelines);
- Participation in at least 5 events on a national and international scale (e.g. Ecomondo, Assemblea Nazionale di ANCI, Didacta, Assemblea Nazionale Albo Gestori Ambientali, Smart City Expo World Congress of Barcelona, European Commission events);
- Participation in at least 3 Workshops and Conferences;
- Continuation of the activities of the technical committee on WEEE;
- Participation in national and international working groups on WEEE collection and recovery partly through networking activities using social and web resources;
- Maintaining and updating the project's website and social media channels;
- Maintaining and updating the IT tools (Software, App) developed within the project;
- Expansion of networking activities with other funded projects;
- Continuation of established collaborative activities with project stakeholders;
- Dissemination of teaching and communication materials both in the form of digital products and, possibly, in the form of traditional (paper) products.

## TARGET GROUP OF AFTER LIFE COMMUNICATION PLAN

Throughout the project, all the main stakeholders identified as essential for the implementation and dissemination of an integrated governance model were involved, in particular:

- Municipalities
- TOs (Ambito Territoriale Ottimale – Optimal Territory Environmental Agency)
- Environmental managers
- CISPEL (Confederazione Italiana dei Servizi Pubblici ed Enti Locali – Italian Federation of Public Utilities and Local Authorities)
- Professional and trade associations.

At the same time, the measures implemented made it possible to reach the target audiences, i.e. the general public, with particular attention paid to schools, officials at all levels of public administration and businesses, especially those linked to the distribution, installation and repair of electronic devices.

<b>TARGET GROUP OF AFTER LIFE PLAN</b>	<b>PROJECT STAKEHOLDERS</b>	Municipality ATO Environmental managers CISPEL Professional and trade associations
	<b>PROJECT AUDIENCES TARGET</b>	Citizens Schools Public Officials Businesses



# TIMETABLE AND BUDGET OF AFTER LIFE COMMUNICATION PLAN

N°	Measures	Responsible beneficiary	Timetable	Resources needed	Budget
1	Maintaining and updating the project website and social media channels	Tuscany Region with the collaboration of all partners	2021-2024	Human resources	€2,500.00 for the maintenance of the website €2,500.00 for running social media channels (Facebook, Twitter) €5,000.00 for maintenance of the Andalusia website
2	Participation and promotion of the project and its results in Workshops, Conferences and Seminars at a national and international level	All partners	2021-2024	Human resources Travel expenses	ANCI: €2,000.00 Florence Chamber of Commerce: €2,000.00 UNIFI DINFO: €10,000.00 Ecocerved: €4,000.00 Chamber of Commerce of Seville: €5,000.00
3	Continued promotion and distribution of the public administration info kit	ANCI Tuscany	2021-2024	Human resources	1.500,00 €
4	Repeats of the training webinars for public officials	ANCI Tuscany	2021-2024	Human resources External instructors	2.500,00 €
5	Networking with other projects funded under both the LIFE program and other European support schemes	ANCI Tuscany	2021-2024	Human resources	2.000,00 €
6	Dissemination of material to schools, both in the form of digital products and, possibly, in the form of printed products	Tuscan Regional Authority	2021 - 2024	Human resources	3.000,00 €
7	Networking con altre 3 Regioni italiane (Nord, Centro, Sud) per la condivisione dell'esperienza del progetto legata al target scolastico (Webinar)	Tuscan Regional Authority	2022 - 2023	Human resources	2.000,00 €
8	Continuing to promote and to distribute the info kit to SMEs	Chamber of Commerce of Florence	2021-2024	Human resources	500,00 €
9	Continuing to promote and to distribute the WEEE Management Guide to SMEs	Chamber of Commerce of Florence	2021-2024	Human resources	500,00 €
10	Continuing to promote the Green Network of SMEs through videoPILLS	Chamber of Commerce of Florence	2021-2024	Human resources	500,00 €
11	Further free training for SMEs by promoting the video course	Chamber of Commerce of Florence	2021-2024	Human resources	500,00 €

<b>N°</b>	<b>Azione</b>	<b>Beneficiario responsabile</b>	<b>Timetable</b>	<b>Risorse necessarie</b>	<b>Budget</b>
<b>12</b>	Networking with other Chambers of Commerce/Board Sections in order to disseminate info kits, WEEE management guides, videoPills, video courses and promotional material	Chamber of Commerce of Florence	2021-2024	Human resources	1.500,00 €
<b>13</b>	1 training seminar per year for SMEs	Chamber of Commerce of Florence	2021-2024	Human resources	1.500,00 €
<b>14</b>	Continuation of awareness-raising actions for SMEs through the FB page of the Tuscany Regional Section (at least 4 posts per year on WEEE)	Chamber of Commerce of Florence	2021-2024	Human resources	500,00 €
<b>15</b>	CircolaRAEE software maintenance and user support	Ecocerved	2021-2024	Human resources	6.000,00 €
<b>16</b>	Updating of project documents and dissemination of promotional materials	Ecocerved	2021-2024	Human resources	5.000,00 €
<b>17</b>	Dissemination of awareness-raising videos on the issue	Seville Chamber of Commerce	2021 - 2024	External assistance	5.500,00 €
<b>18</b>	Continuation of the meetings of the Andalusian Working Group	Seville Chamber of Commerce	2021 - 2024	Human resources	5.000,00 €
<b>19</b>	Maintenance and updating of LIFE WEEE App	UNIFI – DINFO	2021 - 2024	Human resources	2.000,00 €



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