

Τελική Έκθεση / Final Report
Extended Summary

LIFE Project Number
LIFE14 ENV/GR/000858

**“Κοινωνική Αξιολόγηση του Κύκλου Ζωής (S- LCA)
δράσεων του Ευρωπαϊκού Έργου LIFE- REWEEE”**

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Reporting Date
30/11/2020

«Κοινωνική Αξιολόγηση του Κύκλου Ζωής (S- LCA) δράσεων
του Ευρωπαϊκού Έργου LIFE- REWEEE»

(Δράση C.2)

Data Project

Project location	Greece, Belgium
Project start date:	01/01/2016
Project end date:	30/11/2020
Total budget	2.161.405 €
EC contribution:	1.247.300 €
(%) of eligible costs	60 %

Data Beneficiary

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ΑΚΡΩΝΥΜΙΑ ΚΑΙ ΣΥΝΤΟΜΟΓΡΑΦΙΕΣ

ΑΗΗΕ	Απόβλητα Ηλεκτρικού και Ηλεκτρικού Εξοπλισμού
ΕΕ	Ευρωπαϊκή Ένωση
ΗΗΕ	Ηλεκτρικός και Ηλεκτρονικός Εξοπλισμός
ΚΔΤ	Κέντρο Διαλογής και Ταξινόμησης
ΤΠΕ	Τεχνολογίες Πληροφορικής και Επικοινωνιών
ΧΥΤΑ	Χώρος Υγειονομικής Ταφής Αποβλήτων
ΧΥΤΥ	Χώρος Υγειονομικής Ταφής Υπολειμμάτων
GEM	Global E- waste Monitoring
SETAC	Society of Environmental Toxicology and Chemistry
UNEP	United Nations Environmental Program

Extended summary

Globally, the production of Waste of Electrical and Electronic Equipment (WEEE) has been increasing, with the EU countries being among the top producers. Recycling has been until now the principal option to cope with the negative impacts of WEEE. However, recently, the concepts of prevention, repair and preparing for reuse have gaining momentum. The EU pilot program LIFE REWEEE, implemented mainly in Greece, aimed at promoting these concepts through different actions including the operation of two WEEE Sorting Centres (SC), the creation of an online used Electrical and Electronic Equipment (EEE) exchange platform and the organization of Repair Cafes. To evaluate the outcome of these actions and to investigate their social impacts, the methodology of Social Life Cycle Assessment (SLCA) was applied. In this context, questionnaires were developed and distributed to the personnel of the two SC, as well as to the receivers of the repaired EEE, while secondary data were collected for the operation of the online EEE exchange platform and the Repair Cafes. The results for each actor involved in the activities of the LIFE REWEEE program showed an overall satisfaction from and support of this initiative and the overall concepts of prevention and preparation for reuse. Still, due to the novelty of the REWEEE project actions and the lack of standardization of SLCA methods, as well as the increased difficulty to effectively reach all the involved actors due to the Covid-19 crisis, further SLCA investigation in the field of prevention, repair and reuse of WEEE is proposed.

WEEE is one of the fastest growing waste streams worldwide. More than 40 million tonnes of WEEE are created globally each year. The management and disposal of this type of waste is complex and sometimes related to illegal WEEE transport towards developing countries, under the coverage of used EEE trade. In several countries, dumping of WEEE in landfills without proper treatment, unsafe/semi-illegal handling from scavengers or illegal exports of WEEE from industrialised countries to developing ones constitute an everyday practice.

In order to demonstrate the feasibility and enhance the public perception towards the reuse of EEE and the preparing for reuse of WEEE, the LIFE RE-WEEE project established the operation of two WEEE Sorting Centres (SC), the creation of a web-based EEE donation and exchange platform and the organization of Repair Cafes.

The full supply chain of an electrical or electronic product is very complex. Ekener-Petersen & Finnveden (2013) simplify it into the following life cycle stages: (i) resource extraction, (ii) refining and processing of raw materials, (iii) manufacturing and assembly (including manufacturing of components, assembly of complex components and final assembly), (iv) marketing and sales, (v) use (i.e., customer relations), and (vi) recycling and disposal.

The aforementioned life cycle of EEE extends across different parts of the world. Raw materials are extracted from different quarries, a large part of manufacturing and assembly take place in Asia while, in our case study, the use phase takes place in Europe. The recycling and disposal of WEEE take place within the geographical context of the use phase, although in some cases they may take place in different parts of the developing world. Overall, the transportation of materials and equipment has a pivotal role in the entire life cycle of EEE and WEEE. Therefore, social impacts for WEEE prevention and preparing for reuse are generated throughout the supply chain of an EEE.

So far, the social impacts of the reuse phase of EEE have not been addressed in the literature. Therefore, this Action foreseen in the project aimed to act as a first contribution to the discussion. In this report, the key parameters that assess the social impact resulting from the operation of the two sorting centres for WEEE preparing for reuse in Greece via the application of Social LCA methodologies are presented.

The main social impacts resulting from the operation of SCs are as following:

- Preparing for reuse requires more elaborate collection of WEEE, which in turn, requires extra personnel. Therefore, it has a positive social impact since it generates new jobs.
- Sorting of WEEE for preparing for reuse and repairing of recovered appliances are labour intensive activities, therefore generates jobs at a relatively high level of technical skills (especially for repair), which has a positive impact at the local level. Employment data were collected from the operators of the two centres. Moreover, job satisfaction of the employees was assessed via a structured questionnaire.
- Reuse of EEE extends the life span of appliances. Therefore, demand for new appliances is reduced in the geographical context where appliances are manufactured or assembled. It has not been possible to collect relevant primary data in the context of the REWEEE project.

- A part of the repaired EEE from the centres was donated to socially challenged groups. The attitudes of the people that received the repaired appliances were recorded via a structured questionnaire.

Overall, the key parameters for the application of social LCA in the field of WEEE reuse include positive employment implications, increase of EEE donation to socially-challenged groups, and enhancement of ICT use and digital skills upgrade among the aforementioned social groups. Based on the results of our analysis, policy makers can link the prevention of an environmental and resource depletion problem, such as WEEE generation, to a positive paradigm that generates jobs from EEE preparing for reuse and repair and enhances the ICT skills of less privileged social groups.