



PROMOTING INNOVATION IN THE GREEN ECONOMY IN LATIN AMERICA AND THE CARIBBEAN BY INCLUDING QUALITY INFRASTRUCTURE

Quality Infrastructure services to solve the e-waste problem

Context:

- The Problem(s)
- Global GE Perspective

Electronic waste or e-waste describes discarded electrical and electronic equipment (EEE). In the technical debate it is called *waste electrical and electronic equipment (WEEE)*. Used electronics which are destined for reuse, resale, salvage, recycling or disposal are also considered e-waste.

Informal processing of e-waste in developing countries can lead to adverse human health effects and environmental pollution. Electronic scrap components, such as CPUs, contain potentially harmful components such as lead, cadmium, beryllium, or brominated flame retardants. Recycling and disposal of e-waste may involve significant risk to the environment, to workers and communities in developing countries and great care must be taken to avoid unsafe exposure in recycling operations and leaking of materials such as heavy metals from landfills and incinerator ashes.

E-Waste is also from the perspective of *resource (in-)efficiency* a major problem. For an appropriate reuse, it is necessary to identify different components and materials, give guidelines for the appropriate handling; better even to include principle recycling already in the product design phase.

Situation in Latin America and the Caribbean

- Leading countries in LAC

In recent years, the fast technological development, the strong increase in sales and the continuous digitalization of society have caused an accelerated rise of waste electrical and electronic equipment (WEEE). Due to the increasing economic and social development, these tendencies have been particularly pronounced in Latin America. While the industry in many developed countries is already paying a great deal of attention to the recycling and disposal of WEEE, this topic has just barely started to become important in many Latin American countries.¹

The participation of the informal sector in the handling of WEEE is typical in Latin America, even though there are also formal companies with several years of experience that have undergone a continuous learning process. Many more are starting or are interested in starting operations. Due to the low availability or complete absence of specific standards and technical regulations for the appropriate handling of WEEE in several Latin American countries, there are companies that strive for an inexpensive recycling without considering the negative impacts that their practices may have on the health of their employees and the environment.

Even though WEEE is regarded as an important source of secondary resources that should be taken advantage of, it should not be overlooked that some of its components and materials exhibit hazardous properties, and, therefore, have to be handled with appropriate procedures. The companies that are handling WEEE are currently facing the challenge of finding more adequate methods for the processing and recovery of materials in a world where new types of equipment and technology are continuously appearing in the market. Therefore, there is a strong need for the establishment of guidelines and requirements concerning the appropriate handling of WEEE.

¹ Quote SRI



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At the country level, countries like Colombia and Peru are working currently on standards for e-waste recycling. There is also work in Costa Rica on Greening the IT Industry which includes the management of E-waste² and Argentina has reported local initiatives in e-waste collection and recycling. Nevertheless, the regional landscape lacks a more systematic inventory and the feedback of QI and other partner organizations.

Promotors and key stakeholders

There are two global initiatives/ projects:

The broadest initiative is called “Solving the e-Waste Problem” (STEP), <http://www.step-initiative.org> and is coordinated by the UN from Bonn/ Germany

A stronger industrial focus is the Sustainable Recycling Industries (SRI) project, which supports capacity building for sustainable recycling in developing countries: The program is funded by the Swiss State Secretariat of Economic Affairs (SECO) and is implemented by the Institute for Materials Science & Technology (Empa), the World Resources Forum (WRF) andecoinvent, sustainable-recycling.org

The latter is connected with the global “Resource Efficient Cleaner Production network” (RECPnet) with its Latin American sub-network “Red Latinoamericana de Producción Más Limpia”, <http://produccionmaslimpia-la.net/miembros-red>. The Centers in Colombia and Peru are pioneering with support of the SRI project solving the e-waste project. The network is supported by UNIDO.

There is still a need to contact key stakeholder groups, especially private industry organizations (including traders of recycled e-waste), regional organizations and national authorities for environment and health.

Links to QI:

- Relevant standards (ISO)
- QI service gaps

There are several QI services needed to contribute to solving the e-waste problem in Latin America and the Caribbean. Some examples are:

1. There are standards needed for all different phases of the recycling process from collection, to transport and storage, to treatment. The comparison of different technical and environmental standards for the treatment of WEEE (e.g. Swiss (Swico/SENS), two European (WEEELabex and Cenelec) as well as two North American (R2 and e-Stewards)) recently conducted by SRI is a good point of departure.
2. To implement e-waste recycling standards there will be a need for an increased capability and capacity of testing services. The specific tests still need to be identified.
3. These testing services will require metrological traceability and accreditation.
4. The certification of professionals who are working in the WEEE recycling industry is an additional service needed.

² https://www.apc.org/es/system/files/Costa%20RicaFinalReport_June2011.pdf.



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(Preliminary) Conclusions

- Solving the e-waste problem is a key topic in the green economy agenda, because it refers to environmental (contamination, Hazardous waste), social (health of workers in the recycling industry) and resource efficiency issues (re-use potential of scarce resources).
- In LAC there are already stakeholders working in the area of standardization, which makes it easy to bring additional QI expertise and services in
- As the standardization of the e-waste problem is a relatively new field, we expect a high potential for innovation

Bibliography and links

Solving the E-Waste Problem (Step) 2014: One Global Definition of E-waste, White Paper, June, Bonn

Baldé, C.P., Wang, F., Kuehr, R., Huisman, J. (2015), The global e-waste monitor – 2014, United Nations University, IAS – SCYCLE, Bonn, Germany.

SRI - Sustainable Recycling Industry 2015: Comparison of WEEE-Standards from Switzerland, Europe and the US, study, St. Gallen and Bogota

Links:

<http://www.step-initiative.org>

https://en.wikipedia.org/wiki/Electronic_waste