

# Mobile App for the Logistics and Management of Waste Electric and Electronic Equipment (WEEE)

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# Introduction

**Definition:** It is considered as an electrical or electronic any device that needs electrical current or electromagnetic fields to operate, whose nominal voltage must not exceed 1000 V in AC and 1500 V DC. WEEE refers to such devices at the time when the owner decides that it is no longer useful or that it is obsolete.

- The world produces ~ 60M tons of WEEE annually (UNESCO)
- Colombia contributes with ~ 150K tons annually (Est. CNPML)
  
- Immense potential for material recovery and device reutilization

# Introduction (Cont'd)

## Legal Framework:

- **Decree 2324 of 2000** “by means of which Decree 1130 of 1999 is modified and the organisms and entities that will be in charge of the implementation and development of the Programs of the Agenda of Connectivity are established, in particular, of the "Computers to Educate" Program and other provisions are established for the same purposes”
- **Decree 4741 of 2005**, “which partially regulates the prevention and management of waste or hazardous waste generated within the framework of integral management”
- **Resolution 1297 of 2010** “by which the Selective Collection and Environmental Management Systems for Waste from Batteries and / or Accumulators are established and other provisions are adopted”
- **Resolution 1511 of 2010** “which establishes the Selective Collection and Environmental Waste Management Systems for Bulbs and other provisions are adopted”

# Introduction (cont'd)

## Legal Framework:

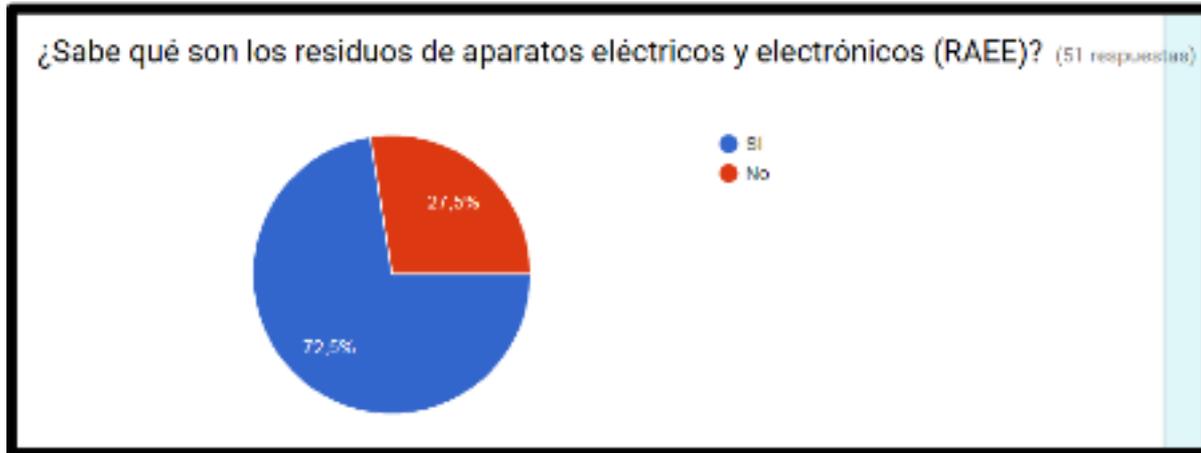
- **Resolution 1512 of 2010**, “which establishes Selective Collection Systems and Environmental Management of Computer and / or Peripheral Waste and other provisions are adopted”
- **Law 1672 of 2013**, “by which it establishes the guidelines for the adoption of a public policy of integral management of waste electrical and electronic equipment (WEEE), and other provisions are dictated”

## Problem Statement (Need)

- How does the WEEE reach the place in which it can “salvaged” ?
- well, the user has something to do with it, doesn't it?
- YES!, however.....

# Problem Statement (Need)

Do you know what WEEE are?



# Problem Statement (Need)

Do you know what do you have to do with them?



# Problem Statement (Need)

Normally, what do you do you with them?

- Throw them away (trash!!)
- Leave them anywhere at home (Furniture)
- Absolutely Nothing (!!!)
- Leave them on the street
- Give them to an informal recycler
- Take them to specialized place

# Problem Statement (Need)

- Is there a way to help users in the collection of their WEEE?
- Colombia has 62.8M Cellphone subscribers (as 2018) (MINTIC)
- What's an App?
  - *“The term refers to a computer program designed as a tool that allows a user to perform various tasks and that is programmed to be used on the operating systems of mobile devices” (Santiago, R et al, 2015)*

# Proposed Procedures

- What would the app do?
  - Mainly, Information exchange between “roles”
  - Traceability
  - Information Repository
- What are the “Roles”
  - Producer/Manufacturer
  - User
  - Collection Manager
  - Treatment Manager
  - Disposal Manager
- Needs
  - QR information implementation
  - All member has to be subscribed and its role defined (Roster)
  - Third Party Coordination

# Proposed Procedures

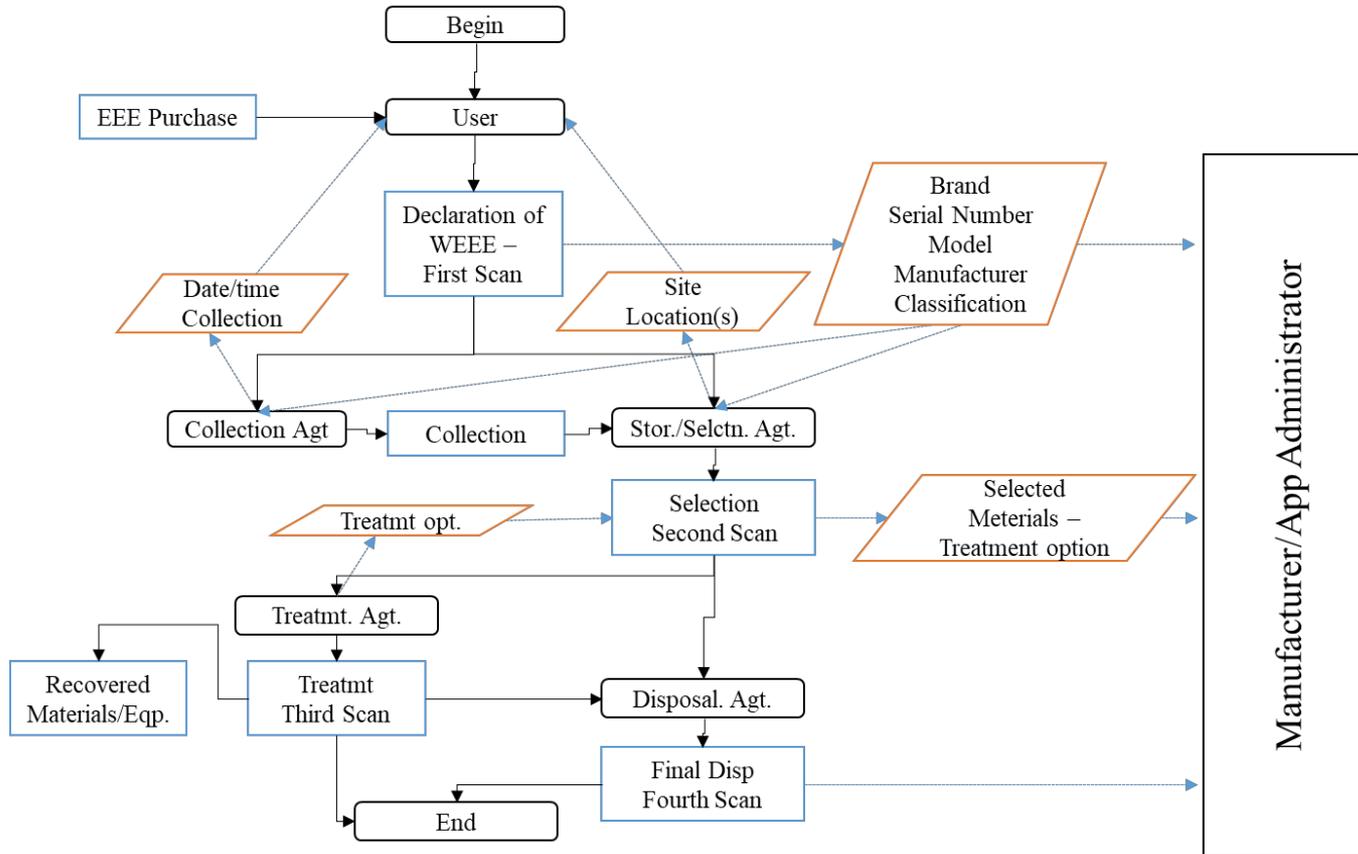


Figure No. 5 General Flow Chart - Sequence of Operation (Dark arrows – Procedures; Blue Arrows Info sharing)

# Proposed Procedures

- Costs
  - According to the law, Producers/manufactures are the ultimate responsible for their products sold within the country
  - Trade association partnership - third party appointment (market share)

# Proposed Procedures

<b>Advantages</b>	<b>Disadvantages</b>
<ul style="list-style-type: none"><li>• High utilization of this waste.</li><li>• Costs would be reduced due to the possible recycling of WEEE.</li><li>• Facilitate the logistics of returning WEEE to producers.</li><li>• There will be a unified system for the WEEE collection logistics, applicable in any context.</li></ul>	<ul style="list-style-type: none"><li>• It is a subject that is very little addressed and very little knowledge of the general public.</li><li>• Large spaces are needed to store the WEEE after its collection.</li><li>• Special facilities are needed for treatment and final disposal</li><li>• Permits and other legal and environmental hurdles</li></ul>

## Some other advantages

- Spatial/temporal georeferencing
- Scheduling (collection)
- Market Share

# Final Remarks

“As a result of the study conducted with respect to WEEE and its management, it was observed that it is not given the necessary interest and that it needs an adequate management worldwide; therefore, the creation of the application focused on locating the electronic devices when its owner decides that they are no longer useful and provide a more organized logistics to facilitate management by the actors from its production to its final disposal becomes a proposal of manifest utility.”

# THANK YOU VERY MUCH

## QUESTIONS?



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