



Integrating the informal recycling sector into the discarded LCD/LED screens management in Santiago de Chile

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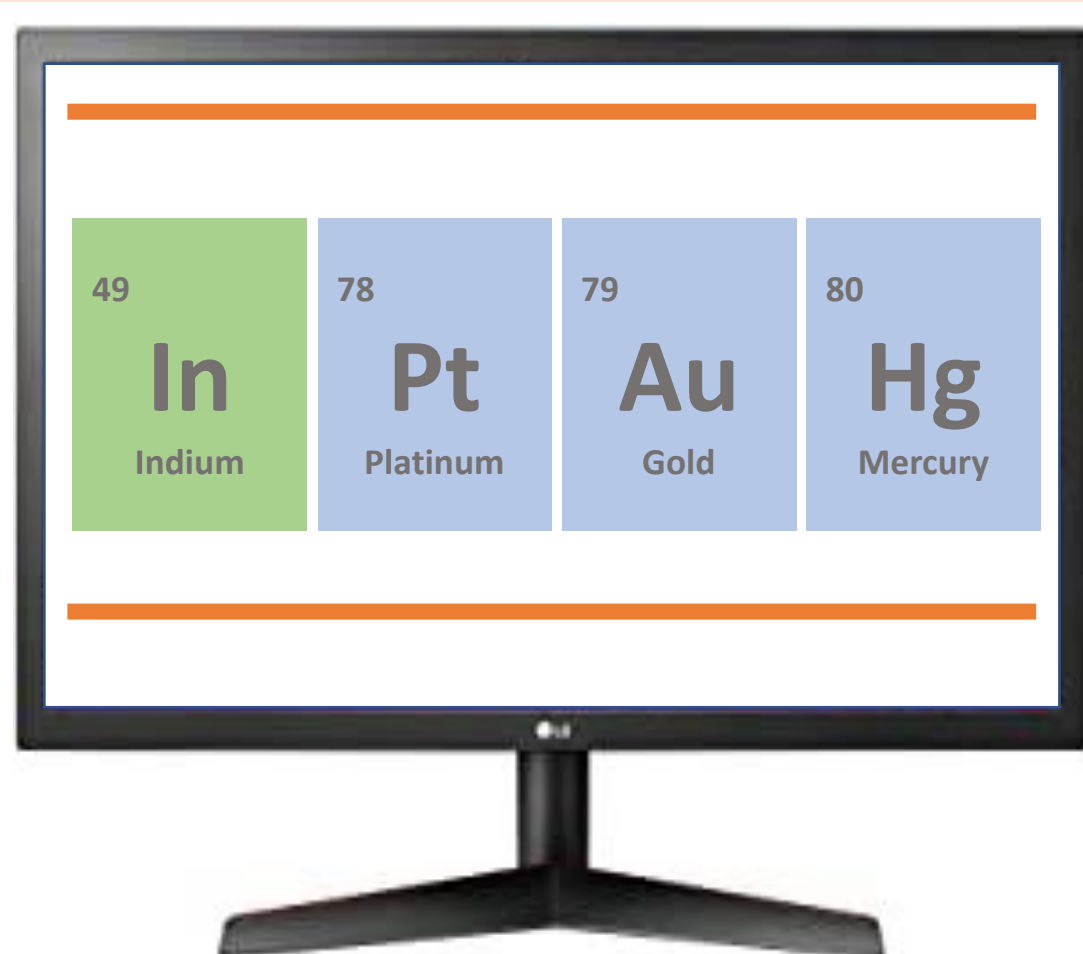
Integrating the informal recycling sector into the discarded LCD/LED screens management in Santiago de Chile

Research objective:

Review and identify electronic waste management configurations with explicit consideration of the informal sector and assess their environmental and social performance

Background

- **Informal recyclers** are men and women who collect waste on the streets or waste facilities to sell them to recycling companies as a way of generating income.
- There are between 12 - 56 million informal recyclers concentrated mostly in Latin America, Asia and North Africa, who are responsible for up to **90% of recycling rates**¹.
- Due to the lack of security and proper equipment, they are exposed to **hazardous substances and physical injuries**².
- Even though their work is not recognized by the authorities, they have **knowledge and experience** regarding waste collection and management³.



- **Liquid-crystal display (LCD) and light-emitting diode (LED) screens** represent 15% of electronic waste (e-waste) in Santiago de Chile⁴.
- They contain **critical elements and precious metals** with a high recycling market value⁵.
- LCD/LED screens present a **high reparability potential**.
- If treated incorrectly, LCD/LED screens can release **toxic elements such as mercury**
- There is **scarce information** about how the informal recycling sector is treating LCD/LED screens in South America, including Chile.

Research question:

How can the informal recycling sector be integrated to improve the sustainability of LCD/LED screens in Santiago de Chile?

Research methods

Field research

Participant observations and semi-structured interviews will be conducted with formal and informal e-waste management actors in Santiago de Chile to identify how the informal sector is managing discarded LCD/LED screens.

Scenario analysis

Representation of current and exploratory configurations for the management of discarded LCD/LED screens.

Environmental and social life cycle assessment

Evaluation of the scenarios in SimaPro to identify critical steps and compare the configurations based on environmental and social indicators.

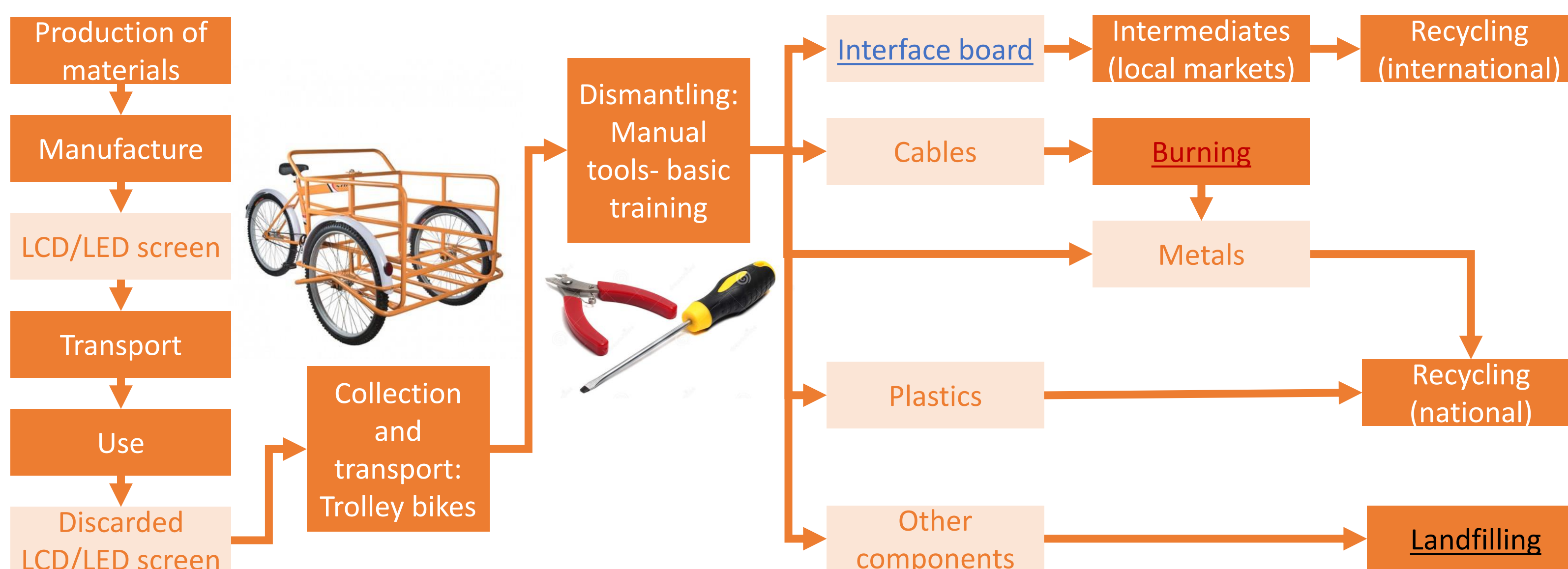
Environmental indicators:

- Global warming potential
- Human toxicity potential

Social indicators:

- Income
- Working hours
- Health and safety standards
- Social security and health
- Vacations

Expected results: current informal management of discarded LCD/LED screens



Conclusions:

- Informal recyclers in Santiago de Chile are exposed to toxic substances when treating and **burning** components of discarded LCD/LED screens.
- Currently, tools and training for dismantling only allow obtaining **interface boards**. Most of the other components are being disposed of in **landfills**.

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