Circularity in the e-waste supply chain

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CIRCULAR ECONOMY

E-WASTE SMART MNGT

URBAN MINING

MATERIALS REVERSE LOGISTICS

INDUSTRY 4.0
AGENDA

• Traditional Mining and Urban Mining
• Critical Materials
• Symbiotic Loopings
• Gaps and Opportunities
TRADITIONAL MINING AND URBAN MINING: ASPECTS OF E-WASTE MANAGEMENT IN BRAZIL

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TRADITIONAL MINING

• Prospection
• Mineral Research
• Project Design

• Mine Planning
• Mineral Production
• Ore Processing
• Mineral Recovering

URBAN MINING

• Disposal
• Collection
• Storage

• Pre-processing
• Destination

• Consolidation
• Reconditioning
• Recycling
EPR Law N 89-FZ
Russia
[1998]

[1994]*
NREPA / Act 451
Michigan
(USA)
*Enacted only in
2008

[2001] EPR Law
Japan

[2003] EWRA
California
(USA)

State clarifies that
cathode ray tube (CRT)
devices are hazardous
when disposed
California (USA)

[2005] EHWHRMR
Canada

ElectroG
Germany

WEEE/RoHS
Italy

[2008, enacted]
NREPA / Act 451
Michigan
(USA)

RoHS law
China
[2006]

[2008]
Ewasa / NEMWA
South Africa

[2007/2009]
WEEE laws
China

WEEE/RoHS
Directive
India
[2011]

BPSW
Brazil
[2010]

[2015]
WEEE laws
Russia

G7

Source: Ottoni et al., 2020
Mining

Value Recovering
Critical, Strategic and Hazardous Materials
MINING AREA

Source: Prof. Romero Gomes - UFOP
Main Mineral Spots in Brazil

Source: IBRAM, 2020
E-waste Urban Mines in Brazil
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PROJECT DATARE (2020-2021)
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Marianna Ottoni a, d, Pablo Dias b, c, Lúcia Helena Xavier d

https://doi.org/10.1016/j.jclepro.2020.120990
THANK YOU!

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