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Circular Economy and Waste Markets

Preliminary study of the electronic waste market and its implications for the circular economy

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CIRCULAR ECONOMY AND WASTE MARKETS

Preliminary study of the electronic waste market and its implications for the circular economy

10 June 2019

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EXECUTIVE SUMMARY

The present report shows the results of a study conducted between February 2019 and June 2019 on the electronic waste market in The Netherlands. The study had the objective to dissect the key features of the e-waste sector, in terms of policies, governance, volumes and challenges. It aimed at understanding the key research and policy challenges for the reorganization of the waste sector in order to comply with the key ambitions of the circular economy. In this study, the notion of circular economy is defined as the process of overall reduction of waste through the increase of its reuse as close as possible to its point of source. While recycling and secondary materials production remains core part of any circular economy strategy, we see the geographical factors as crucial to facilitate the up-scaling and repurposing of discarded materials within city-regional economies.

Electronic waste is a rapidly growing waste stream globally, as well as in the Netherlands. Globally, an estimated 44.7 million metric tonnes of e-waste was generated in 2016, with 407 tonnes of e-waste generated in the Netherlands (Balde et al, 2017).

As a member state of the European Union, e-waste governance has been regulated by the Waste Electronic and Electric Equipment (WEEE) Directive and the Restriction of Hazardous Substances (RoHS) Directive since 2002. The recast 2012 WEEE Directive (2012/19/EU) guides member states in collecting, processing and documenting e-waste, and further sets targets for collection and recycling rates of e-waste. The Netherlands takes a producer responsibility approach in its implementation of the WEEE Directive. Concretely, the Dutch WEEE Directive (IENM/BSK-2014/14758) places the physical and financial responsibility on producers of EEE to collect and process end-of-life electronic and electrical products at a minimum environmental standard. Producers are also obliged to classify and report all EEE put-on-market and WEEE collected and processed to a central administrative agency, the National (W)EEE Register.

Producer responsibility, as conferred by the legal framework for WEEE in the Netherlands, has stimulated an emerging e-waste market. A complex network of actors forms the WEEE supply chain, but key actors involved throughout the chain are Wecycle and Weee Nederland. Both are what the Netherlands terms "collective collection schemes" (collectieve inzamelingsystemen). Essentially, they assume producer responsibility to facilitate and organise e-waste streams from the point of collection until e-waste is delivered to processing facilities. Of the two, Wecycle is a not-for-profit organisation commissioned by 6 national producer associations since 1999 and has been fundamental in setting the legislative scene for WEEE streams, as well as developing intra-Europe standards for WEEE recycling. Since 2015, however, Wecycle has lost a significant proportion of its partner producers and municipalities to newcomer Weee Nederland, a limited liability company. The increasing complexity of the WEEE chain and competition

between key actors in recent years suggests that legislative developments have effected, and continue to effect, institutional and infrastructural changes in the e-waste market.

The changing e-waste market also has implications on the spatiality of e-waste streams in the Netherlands. Dutch e-waste streams can be considered on the national, regional and local scale. While legislation and documentation, and often recycling, occur at the national scale, collection points and pick-up services address end users on the local scale. An interesting development at the economic-geographic nexus is the move towards regionalisation, as the WEEE chain expands to include in-between stages of sorting, dismantling and pre-processing. As with other waste streams, the e-waste sector seeks to balance logistical costs with economies of scale. Considering the e-waste chain begins from consumer masses in cities, recent infrastructural developments on the regional scale speak to an emerging urban-regional articulation of e-waste flows.

Despite more robust legislation and market expansion, official e-waste streams remain challenged by complementary schemes and undocumented illegal export. Furthermore, despite the burgeoning e-waste sector, not much is known about where and how recovered material is re-circulated into the market for raw materials.

The EU has tapped e-waste as a stream with potential for circularity, but whether e-waste flows behave like a circular economy in the Netherlands is uncertain. It is clear that there is a market for e-waste collection, transport and processing, stimulated by the implementation of legislative changes. The market for waste management also seems to be regionally spatialised. However, material flows are more difficult to estimate, in part due to the diversity of materials classified under e-waste, as well as due to the undocumented leakages from official streams.

1 INTRODUCTION

Electronic waste, or Waste Electrical and Electronic Equipment (WEEE) refers to “all items of electrical and electronic equipment (EEE) and its parts that have been discarded by its owner as waste without the intent of re-use” (Balde et al, 2017). E-waste is a growing waste stream, both globally and in the Netherlands. The increasing amount of WEEE generated poses a challenge to waste management to collect and process e-waste efficiently and in an environmentally sound manner. However, opportunities are also present, particularly in the potential for e-waste in today’s paradigmatic circular economy discourse. Hence, this report follows recent developments in the Dutch e-waste chain to provide insights into the changing legislative framework, market structure and geography of Dutch e-waste flows.

The following section highlights key facts and figures of Dutch e-waste generation, collection and processing. In 2016, 407 kilo-tonnes of e-waste were generated in the Netherlands, an average of 23.9 kg per inhabitant, continuing the trend of year-on-year increases in the amount of WEEE generated (Balde et al, 2017). Collection and recycling rates have grown incrementally since 2014, remaining just above 45% (EUROSTAT, 2019).

The third section provides a brief history of the regulation of e-waste in the Netherlands. In particular, the section elaborates on 2 key regulations: the European Union WEEE Directive and the specificities of the Dutch Implementation of the WEEE Directive. These regulations constitute the legislative framework for Dutch WEEE flows. The fourth section describes the WEEE chain in the Netherlands. The majority of WEEE generated is estimated to flow outside of national compliance schemes, through complementary and informal, usually illegal, schemes (Huisman et al, 2017). The WEEE chain can further be subdivided spatially into processes occurring on the local, regional and national levels. The fifth section focuses on key stakeholders of national compliance schemes, Wecycle and Weee Nederland. Termed “collective collection systems”, associations that oversee the entire WEEE chain from the point of its collection to its recycling are typical manifestations of the EU WEEE Directive. The final section considers the geography of Regional Sorting Centres in the Netherlands.

Methodological note

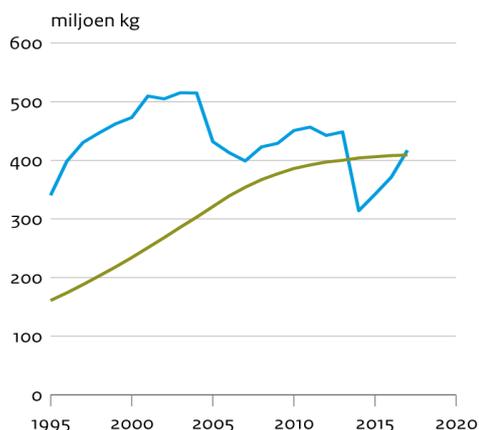
The contents of this report were largely based on desktop research. Statistical data on Dutch WEEE flows were obtained from CBS and Eurostat databases, as well as the National (W)EEE Register’s annual reports. This report also benefited from interviews with Gerard Wiggers of Afval Amsterdam, Mark Tilstra of Wecycle and Mark Wanders of Weee Nederland.

2 KEY FACTS AND FIGURES

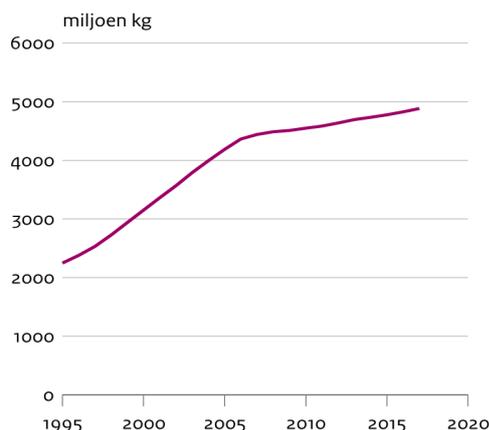
2.1 Generation

Elektrische en elektronische apparatuur

Op de markt gebracht en vrijgekomen



In gebruik



— Totaal op de markt gebracht
— Vrijgekomen afval incl. export

Bron: Nationaalweeeregister; bewerking CBS

CBS/mei19
www.clo.nl/nl056104

Figure 1. WEEE put-on-market, generated and in use. Reprinted from 'Verkoop, gebruik en afgedankte elektronische en elektrische apparatuur, 1995-2017', 2019, retrieved from <https://www.clo.nl/indicatoren/nl0561-afgedankte-elektronische-en-elektrische-apparatuur>.

The graph above-left compares to the amount of EEE put-on-market to the amount of WEEE generated per year in the Netherlands. The graph depicts a falling consumption rate of EEE products by weight since 2004, with an increase in recent years. Despite that, the amount of WEEE generated has consistently increased at a decreasing rate in the Netherlands.

2.2 Collection

Since the implementation of the WEEE Directive in the Netherlands in 2014, collection rates of e-waste have met the EU target of 45% of EEE put-on-market. E-waste collection rates have increased in the last three years. However, the Netherlands is still far from reaching the EU goal of collecting 65% of EEE put-on-market by 2019.

WEEE collection (excluding solar panels)			
	2015	2016	2017
EEE / POM (tons)	315,265	337,920	354,092
WEEE collected (tons)	145,147	154,612	166,168
% collected	n/a	48%	49%

Table 1. Dutch WEEE collection quantities and rates, (NWR 2017a, 2017b, 2017c, 2018).

Collection of WEEE is carried out by three groups of organisations, (1) individual producers, (2) collective collection systems (collective inzamelsystemen) and (3) processors. Producers are predominantly affiliated with a national-level collection system.

In 2017, the following collective collection systems were registered (NWR, n.d.):

- Stichting Zonne-energie Recycling Nederland
- PV Cycle
- Stichting RTA
- Wecycle (under which 1506 out of a total of 2448 producers are registered)
- Weee Nederland (under which 447 out of a total of 2448 producers are registered)

Collective collection systems are responsible for the collection and sorting of e-waste to be processed. The amount of waste collected according to each type of organisation is reflected below. The breakdown of waste collected according to its associated category can be found in Appendix A.

Collected by	2014	2015	2016	2017
Individual producers	1,900	1,978	2,102	1,341
Collective collection systems	116,700	120,523	130,197	136,762
Processors	23,600	23,862	27,591	32,671
TOTAL (tons)	142,000	146,363	159,890	170,774

Table 2. Collection of WEEE in the Netherlands (NWR 2017a, 2017b, 2017c, 2018).

2.3 Processing

The sorted waste is then sent to processors, which treat and recycle WEEE, or export them to other countries to be treated and processed. There are 34 processors registered in 2017 (of which 8 also export to foreign processors). There are a further 5 organisations registered as exporters of e-waste, including the collection systems Wecycle and Weee Nederland.

	2014	2015	2016	2017
Processed in the Netherlands	76%	78%	84%	89%
Processed in another EU country	24%	22%	16%	11%

Table 3. Percentage of WEEE processed in the Netherlands compared to other EU countries (NWR 2017a, 2017b, 2017c, 2018).

There is further information on the amount of WEEE processed in the Netherlands per classification category (see Appendix B).

3 RELEVANT REGULATIONS AND POLICIES

3.1 Timeline of regulation



Figure 2. Timeline of WEEE regulations

3.2 Key policies

European Union WEEE Directive

The current WEEE Directive was recast in 2012 and took effect in June 2014 to regulate and manage e-waste in the European Union (2012/19/EU). Per the Directive, the following had to be implemented by national legislation according to the specificities of national contexts:

- Provision of national e-waste collection points and processing systems
- Separate collection of e-waste
- Environmentally sound treatment and storage of e-waste components and materials
- Statistical accounting and reporting of e-waste to national enforcement authorities
- Production and design of EEE to facilitate recovery, reuse and recycling of its components and materials, "ecodesign"

The WEEE Directive also sets goals for e-waste collection. The targets are:

- 45% of the 3-year average weight of EEE put-on-market by 2016
- 65% of the 3-year average weight of EEE put-on-market by 2019
OR 85% of all e-waste generated by 2019

Dutch Implementation of the WEEE Directive

In the Netherlands, the WEEE Directive took the form of the Dutch Implementation of the WEEE Directive (Regeling afgedankte elektrische en elektronische apparatuur, IENM/BSK-2014/14758). The Dutch WEEE Directive imposes extended producer responsibility, that is, producers are "responsible for financing the collection, processing, recovery and environmentally responsible disposal" (Art. 13 & 14).

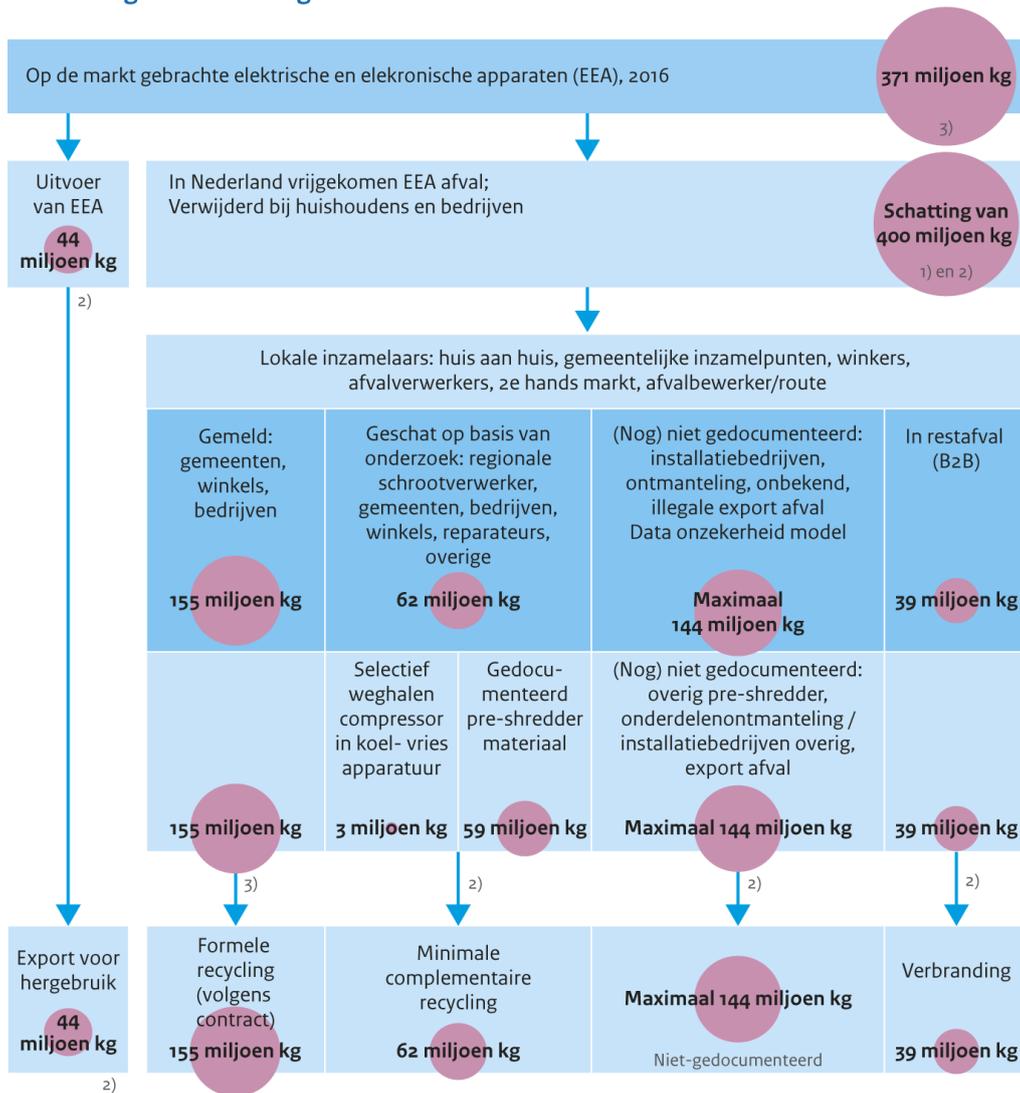
Municipalities are obliged to be responsible for the separate collection of WEEE, defined as the provision of at least one place for private households to freely dispose of WEEE.

Further, the Dutch WEEE Directive includes provisions for better statistical reporting. Article 18 establishes the Stichting National (W)EEE Register (NWR), an inspectorate responsible for reporting e-waste statistics to the Ministry of Infrastructure and the Environment. Producers and importers are obliged to register with the NWR, and classify and report (W)EEE put-on-market and processed every year. They may choose to do so individually, or through producer collectives and national collection systems.

4 DUTCH WEEE FLOWS

The Dutch WEEE chain can be visualised according to the following chart

Op de markt gebrachte elektrische en elektronische apparaten (EEA), inzameling en verwerking



Bron: 1) CBS, 2) www.urbanmineplatform.eu, 3) www.nationaalweeeregister.nl

CBS/feb18
www.clo.nl/nl056103

Figure 3. Electric and electronic equipment put-on-market, collection and processing. Reprinted from 'Verkoop, gebruik en afgedankte elektronische en elektrische apparatuur, 1995-2017', 2019, retrieved from <https://www.clo.nl/indicatoren/nl0561-afgedankte-elektronische-en-elektrische-apparatuur>.

Dutch WEEE can be divided into 4 streams.

1. Documented WEEE collected by municipalities, retailers and producers, which is then formally recycled under contracts (155 million kg)
2. Complementary WEEE collected by regional scrap processors, municipalities, retailers, producers, repairmen and others, made up of selected compressors in cooling and freezing appliances and pre-shredder material, which represent a complementary recycling stream (62 million kg)
3. Undocumented WEEE collected by installation companies, dismantlers and other unknown actors, including undocumented pre-shredder material or parts that are possibly illegally exported (maximum 144 million kg)
4. Residual waste containing WEEE that is incinerated (39 million kg)

As the large volumes of complementary and undocumented streams attest, a significant amount of waste in the Netherlands remains unaccounted for despite improvements in the formally-reported collection rate.

The formal recycling scheme can be further divided into the local, regional and national scales (Huisman et al, 2012):

On the local level

- Households return electronic waste to retailers and/or dispose of them at collection points
- Retailers/producers return electronic waste to municipal collection points, producers and producer collectives, and to national compliance schemes
- Municipalities provide e-waste collection points

On the regional level

- National compliance schemes remove and transport waste from households, businesses and municipalities to regional sorting and processing centres
- Regional processors process small amounts of scrap metal (i.e. pre-processing), which is then transported to recyclers

On the national level

- National compliance schemes transport sorted and/or processed e-waste to national recyclers, or export them to foreign recyclers
- Non-recyclable material is incinerated

5 KEY STAKEHOLDERS

Multiple actors are involved in the Dutch WEEE chain. This section focuses on the official take-back and recycling systems managed by Wecycle and Weee Nederland. Known as “collective collection systems” (collectieve inzamelingsystemen), they assume the responsibility on producers’ behalf to manage and finance the collection, transport, sorting, processing and export of e-waste in partnership with municipalities, producer collectives, logistics firms and processing and recycling firms.

Both organisations can be said to fulfil 5 main functions (Vereniging NVMP, 2018):

1. Acquisition and collection: Wecycle and Weee Nederland organise the take-back of used EEE. End users may also return their e-waste to collection points managed by them, or via a pick-up service.
2. Processing: Processing includes the sorting, dismantling, refinement and recycling. Wecycle and Weee Nederland work with processors in the Netherlands, and/or export e-waste to be processed in other EU countries.
3. Logistics: Transport of e-waste from municipalities and collection points to Regional Sorting Centres is organised. Devices and sorted waste are then taken to national recyclers and/or exported to foreign processors.
4. Administration: Both organisations ensure producer registration with the National (W)EEE Register, report producers’ and processors’ collection and processing behaviour, and consult on legal matters.
5. Publicity and knowledge sharing: Both organisations run publicity and educational campaigns, as well as work with local initiatives.

The key role played by organisations such as Wecycle and Weee Nederland was no doubt an effect of enacting e-waste legislation throughout the European Union, which placed responsibility for e-waste collection on municipalities, producers and importers. In the Netherlands, the extended producer responsibility approach results in different types of contracts drawn up between Wecycle/Weee Nederland and its partners (M. Tilstra, personal communication, May 17, 2019, and M. Wanders, personal communication, May 20, 2019):

- Municipalities are paid per tonne of e-waste collected from private households, whether disposed at collection points or donated to second-hand shops (kringloopwinkel).
- Retailers receive a service fee for taking back end-of-life products.
- Producers either contract Wecycle or Weee Nederland independently or through their membership with a producer collective. Contracts with producers usually cover the entire process from collection to recycling, but producers may also operate their own take-back and sorting processes.

- Wecycle and Weee Nederland may also subcontract part of the WEEE chain to partners such as social enterprises, logistics companies and waste collection companies.

Comparing the two organisations, Wecycle is commissioned by 6 producer collectives and has been in operation since 1999, while newcomer Weee Nederland was founded in 2013. The key difference between the two lies in their internal organisation. Wecycle is a not-for-profit organisation whose budget is determined by the Vereniging NVMP, the umbrella association of the aforementioned producer collectives. Weee Nederland is a limited liability company expressly created with the objective of offering producers and municipalities an alternative to Wecycle, thereby breaking their monopoly on the waste management market. Indeed, the insertion of Weee Nederland seems to have reorganised the Dutch WEEE chain with territorial implications (see next section).

	Wecycle	Weee Nederland
Year founded	1999	2013
Type of organisation	Social enterprise	Limited liability company
Partner municipalities	316 (in 2017)	83 (in 2019)
Partner producers	1506 (in 2017)	447 (in 2017)

Table 4. Comparison of Wecycle and Weee Nederland (see Appendix C).

6 GEOGRAPHY OF WASTE

Regional Sorting Centres Netherlands

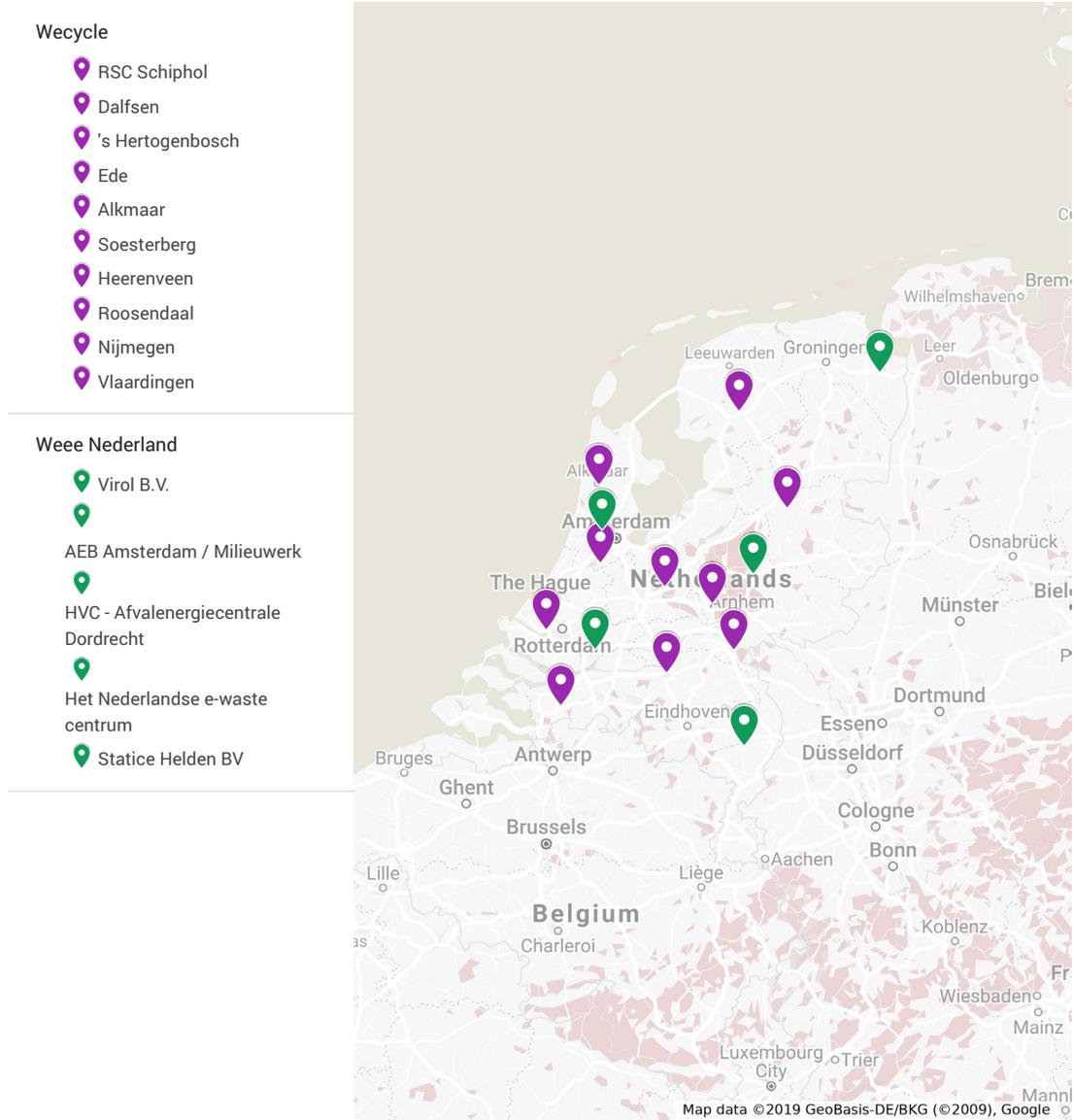


Figure 4. Locations of regional sorting centres in the Netherlands, 2019.

The e-waste sector faces two considerations shared by most other waste streams: logistics and volume. Logistics are necessary to transport e-waste throughout the WEEE chain, from collection points to sorting installations to recyclers. Considering there are thousands of collection points but only a few recyclers operating at the national level, logistics can be prohibitively expensive, making up more than half of Wecycle's annual budget, for example (M. Tilstra, personal communication, May 17, 2019). Volume is an equally important consideration, as electric and electronic equipment comprises different parts with variable recovery value. Sorting, dismantling and other pre-processing activities are necessary to reduce bulky appliances to valuable mono streams, but volume is needed for such processes.

It is therefore unsurprising that the infrastructure for e-waste management has been developed on a regional level to balance logistics and volume concerns. In particular, infrastructure has been built to sort and dismantle e-waste on a regional level. Before 2017, there were 4 regional sorting centres in operation. Today, Wecycle and Weee Nederland claim a total of 16, geographically distributed across the country. The move toward regionalisation of in-between manual sorting and pre-processing stages represents a spatial development in the geography of the e-waste sector in the Netherlands.

7 OPPORTUNITIES FOR FURTHER RESEARCH

Some analytical challenges have emerged through the process of creating this report, which could provide fertile ground for future research.

1 There is a need to investigate the less visible links in the WEEE supply chain. This does not only involve undocumented e-waste, but also the role of end users in disposal and recyclers in the circulation of recovered materials in secondary circuits. Attempts to close the loop require sufficient understanding of the start (i.e. end users) and end (i.e. recyclers) of the WEEE supply chain.

2 Relating to the previous point, the diversity and mobility of the e-waste stream makes it difficult to map the geography of the WEEE supply chain in the Netherlands. In particular, the role of cities and the tension between local-level and national-level governance need to be understood. Furthermore, causal mechanisms could be developed to understand the effects of policy or market developments on the territorialisation of the WEEE supply chain.

3 The European Union explicitly connects the circular potential of WEEE recycling to the worldwide scarcity of critical raw materials (EC, 2018). The relationship between scarce raw materials and the (perceived) need to recover them from e-waste streams should be further interrogated, especially in connection to the global spatial distribution of production and supply chains.

4 The normative value of recycling as a policy goal also needs to be considered in the context of the hierarchy of waste management operations. In particular, recycling is not necessarily complementary with purported policy goals of waste reduction, and may in fact conflict directly with it. The relationship between recycling and waste reduction in the e-waste sector could be the subject of further research.

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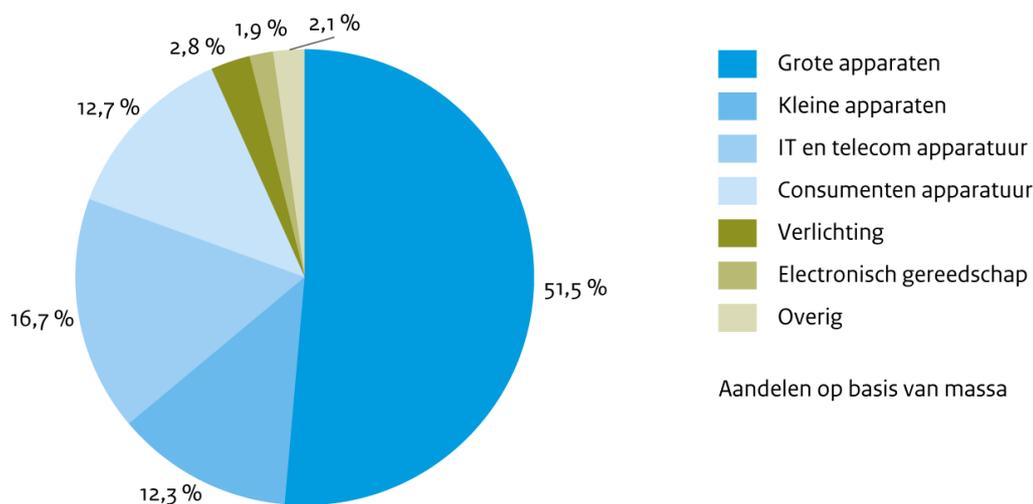
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APPENDIX A: COLLECTION OF WEEE IN THE NETHERLANDS

Elektrisch en elektronisch afval naar categorie, 2017



Bron: Nationaalweeeregister

CBS/meig
www.clo.nl/nl056104

Figure 5. E-waste collected per category, 2015-2017. Reprinted from 'Verkoop, gebruik en afgedankte elektronische en elektrische apparatuur, 1995-2017', 2019, retrieved from <https://www.clo.nl/indicatoren/nl0561-afgedankte-elektronische-en-elektrische-apparatuur>.

WASTE/TIME	2010	2011	2012	2013	2014	2015	2016
Total waste	128,119	132,197	123,684	117,499	141,805	145,192	154,675
Large household appliances	63,951	62,691	59,590	58,517	64,496	67,226	76,274
Small household appliances	7,048	8,601	7,067	7,362	10,219	12,968	13,352
IT and telecommunications equipment	20,620	19,443	17,625	14,437	29,699	28,855	28,275
Consumer equipment and photovoltaic panels	28,244	31,647	29,869	27,547	27,741	26,426	25,057
Lighting equipment	1,263	1,684	1,727	1,848	2,012	2,074	2,234
Gas discharge lamps	1,628	1,700	1,706	1,660	1,703	1,736	1,793
Electrical and electronic tools	1,788	2,308	2,376	2,458	2,445	2,834	2,743
Toys, leisure and sports equipment	485	830	694	453	528	887	1,027
Medical devices	183	178	183	135	365	651	305
Monitoring and control instruments	78	55	33	183	234	534	2,412
Automatic dispensers	2,831	3,060	2,814	2,899	2,363	1,001	1,203

Table 5. WEEE collected in the Netherlands per waste category, 2010-2016 (EUROSTAT, 2019).

APPENDIX B: RECYCLING AND REUSE OF WEEE IN THE NETHERLANDS

		2015 (tons)	2016 (tons)	2017 (tons)
1	Large appliances - household refrigerators	25,238	27,161	27,466
1	Large appliances - professional cooling systems	545	820	1,006
1	Large appliances - household non-cooling	41,021	48,170	56,776
1	Large appliances - professional non-cooling	421	121	251
2	Small household appliances	12,968	13,352	20,486
3	IT and telecom equipment - display tubes	2,155	1,753	1,409
3	IT and telecom equipment - flat panels	1,315	1,520	1,658
3	IT and telecom equipment - other household	19,406	19,932	18,259
3	IT and telecom equipment - other professional	5,980	5,070	6,478
4	Consumer equipment - display tubes	16,015	13,837	11,172
4	Consumer equipment - flat panels	1,187	1,730	2,376
4	Consumer equipment - solar panels	6	64	20
5	Lighting - professional fixtures	2,074	2,234	2,819
5	Lighting - energy-efficient household lamps	94	116	91
5	Lighting - energy efficient professional lamps	1,642	1,677	1,682
6	Electric tools	2,834	2,743	3,210
7	Toys, sports and entertainment equipment	887	1,027	845
8	Medical instruments	651	305	258
9	Measurement and control instruments	534	2,412	1,414
10	Vending machines - cooled	342	430	540
10	Vending machines - uncooled	620	773	378
	TOTAL	145,152	154,675	166,187

Table 6. Quantities of WEEE processed in the Netherlands per category, 2015-2017. Retrieved from <https://www.nationaalweeeregister.nl/nederlands/rapportage.html>.

APPENDIX C: ABOUT Wecycle AND WEEE NEDERLAND

Wecycle

Wecycle is commissioned by 6 producer collectives under the umbrella association Vereniging NVMP (Nederlandse Verwijdering Metalelektro Producten). Wecycle is hence considered a not-for-profit organisation; its budget is allocated by the NVMP.

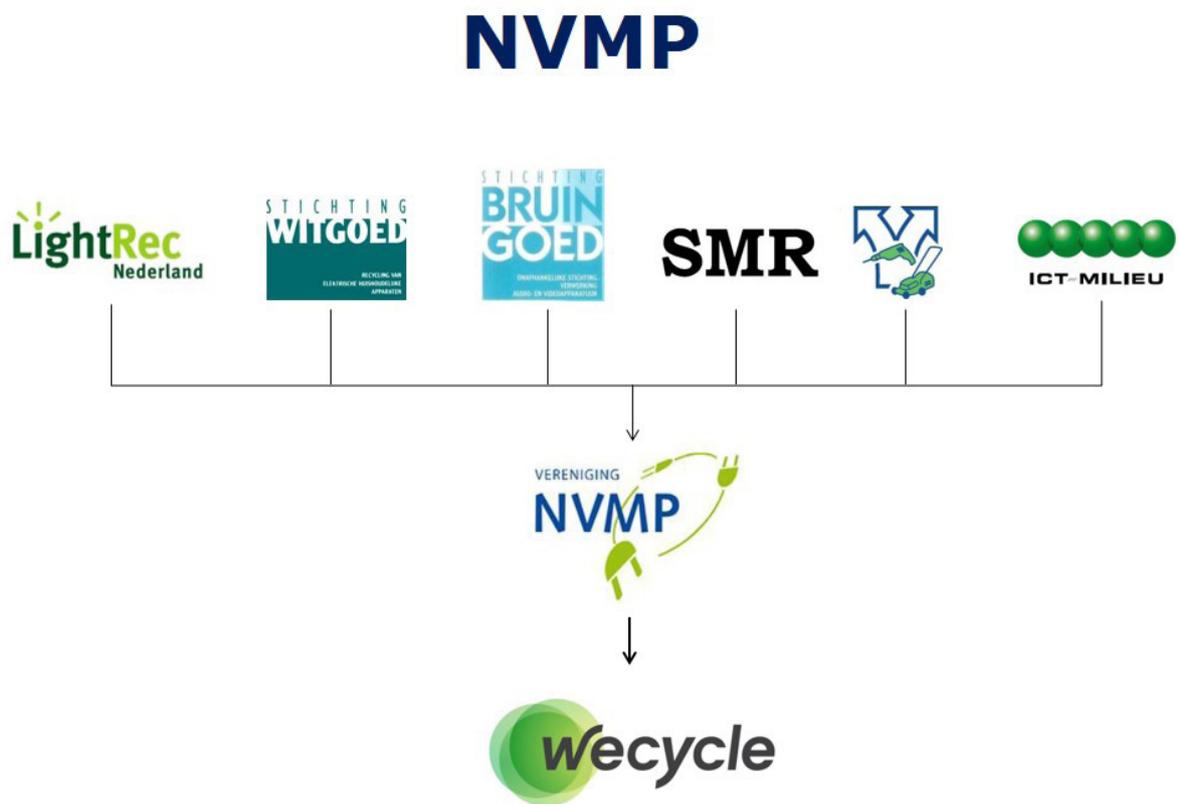


Figure 6. Organisation of Wecycle and its parent producer collectives. Reprinted from 'Over NVMP', 2018, retrieved from <https://www.nvmp.nl/over-nvmp/vereniging-nvmp/>.

Wecycle has been fundamental in shaping the national legislative framework for WEEE. It is a founding member of WEEE Forum, a consortium of not-for-profit collection and recycling systems across Europe. Efforts to harmonise intra-Europe WEEE recycling standards culminated in the development of the WEEELABEX certification, which has since been integrated into Dutch WEEE legislation.

Types of partnerships	Number of partners	Partners
Producer collectives	6	Stichting Bruingoed (260 producers and importers) ICT Milieu (260) LightRec Nederland (618) Stichting Metalektro Recycling (703) Stichting Verwijdering Elektrische Gereedschappen (181) Stichting Witgoed (448)
Producers and importers	1750	Full list https://www.wecycle.nl/producenten/overzicht
Installation companies	1000	Full list https://www.wecycle.nl/installateurs
Municipalities	316 (2017)	Full list https://www.wecycle.nl/gemeenten/overzicht
Processors		Netherlands: Coolrec Holland Recycling HKS Metals Huiskes A. Jansen Recycling Sims Recycling Solutions Weelec Belgium: Indaver Germany: Enviprotect Remondis

Table 7. Wecycle partners.

	2011	2012	2013	2014	2015	2016	2017
Collection of e-waste (million kg)	127,8	121,2	114,7	111,2	109,7	109,6	106,9

Table 8. Wecycle's annual e-waste collection, 2011-2017 (Wecycle, 2015, 2016, 2017)

Facility	Date opened	Function
Schiphol Regional Sorting Center (with Meerlanden)	June 2018	Sorting and dismantling
Dalfsen	April 2017	Sorting and dismantling
Den Bosch		Sorting and dismantling
Ede		Sorting and dismantling
Alkmaar		Sorting only
Heerenveen		Sorting only
Heerlen		Sorting only
Roosendaal		Sorting only
Nijmegen		
Soesterberg		
Vlaardingen		

Table 9. Wecycle Service Centres - location and function (Wecycle, 2017)

Weee Nederland

Little information is available about the quantities and categories of e-waste collected and recycled by Weee Nederland, and the cost of doing so. Notably, they claim to have the lowest collection and registration service costs, to which they attribute their growth in partner municipalities and producers. Since their largest partner trade association is the producer collective Nederlandse Vereniging van Leveranciers voor Grootkeukenapparatuur (NVLG), it can be speculated that the company may predominantly recycle large EEE.

Facility	Partner	Function
The Netherlands E-waste Centre, Apeldoorn	Circulus-Berkel	WEEE Nederland headquarters
Scheemda	Virol B.V.	Manual dismantling of large kitchen appliances ICT dismantling
Amsterdam	AEB Amsterdam Milieuwerk	Cable processing
Dordrecht	HVC	Manual dismantling of large kitchen appliances
Beringe	Statice	

Table 10. Weee Nederland's regional sorting centres - location, partners and functions (Weee Nederland, n.d.).