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## **Dutch White Trash: A Phoenix Without Ashes. What Happened to the Emperor's Old Clothes?**

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### **Abstract**

In the Dutch capitalistic consumer society, things are not made to stand the test of time, but to be replaced by other things within the foreseeable future. They are made to be thrown away, and quite often as quickly as possible, because it is this characteristic that guarantees a new purchase. In this contribution the authors will focus on a white T-shirt. The main questions are: What is the current practice in the Netherlands regarding the disposal, separation, reusing, and recycling of this Dutch white trash and how does the legal framework regulate the matter of RMG waste?.

**Keywords:** Capitalistic Consumer; Clothing; Dutch White Trash.

### **Introduction**

With the industrialisation and the rise of a predominantly material and consumer-oriented society a fundamental change has taken place. The act of discarding products has become an essential part of the production cycle. In order to keep that cycle running, it is important that we constantly purchase products that are competitively priced, to keep up with the latest fashions and then, in order to keep up with the fast turnaround, get rid of them again. We do not throw away our belongings because they have become useless, but because we are presented with something newer that we have to wear, use or eat. Unlike with waste, the worthlessness is already entailed in a product that becomes trash. In the Dutch capitalistic consumer society, things are not made to stand the test of time, but to be replaced by other things within the foreseeable future. They are made to be thrown away, and quite often as quickly as possible, because it is this characteristic that guarantees a new purchase.

### The Unavoidable March of Dutch White Trash

Dutch citizens produced a great deal of waste in 2017, on average, 489 kilos per person. However, not all of it is worthless trash. In the Netherlands, about 47 percent of the waste is discarded and incinerated. The other 53 percent is collected separately and put to better use. This, to give some examples, translates to about 52 kilos of old paper and carton, nine kilos of plastic, 5,5 kilos of metal, 80 kilos of biodegradable waste, 20 kilos of glass, nine kilos of household electronics and four kilos of textile.

While this list looks impressive, there is still a lot of room for improvement, taken the European and Dutch ambition into consideration to transform our economy into a circular economy. In particular, a much higher percentage of the waste could be separated, and this would require a large effort from the central government,<sup>1</sup> municipalities, and consumers alike. But the separation of waste is just the first step in a much larger process of making our consumer behavior and waste production more sustainable and socially responsible. The type of waste, which we currently produce, is of a different type than the waste, which was produced before. Philosopher Greg Kennedy argues in his *An Ontology of Trash* (2007)<sup>2</sup> that we have to make a distinction between ordinary waste and modern waste. All trash is waste, but not all waste is trash. The things we throw in the bin nowadays, modern waste are *trash*. Trash takes on the appearance of a monstrosity; a kind whose defining features contradicts its genus.

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<sup>1</sup> In the Netherlands a national policy is in place called Nederland circulair in 2050 and the “The target of separating 75 per cent of domestic waste by 2020 is also still a serious challenge: in 2016, the counter had not gone past 54 per cent. The waste numbers since 2017 fall outside the scope of this evaluation report”.

<sup>2</sup> Kennedy G, *An Ontology of Trash. The Disposable and Its Problematic Nature* (State University of New York Press 2007).[115]

that are competitively priced, to keep up with the latest fashions<sup>3</sup> and then, to keep up with the fast turnaround, get rid of them again. We do not throw away our belongings because they have become useless, but because we are presented with something newer that we have to wear, use or eat. Unlike with waste, the worthlessness is already entailed in a product that becomes trash. Things are not made to stand the test of time, but to be replaced by other things within the foreseeable future. They are made to be thrown away and quite often as quickly as possible because it is this characteristic that guarantees a new purchase.

In this contribution, we will focus on a white T-shirt. What is the current practice in the Netherlands regarding the disposal, separation, reusing, recycling of this Dutch white trash, and what is the legal framework regulating this?. This tendency to make products that are born to be trash dramatically increases the necessity to recycle while at the same time, these products are by their nature ill-suited to be recycled or reused properly.

### **Reusing and Recycling *Trash***

From the fourteen kilos of textile waste per Dutch household in 2017, only four kilos are collected separately (30 per cent). The rest is not separated and therefore combined with general household waste and incinerated. A first distinction that can be made is between reuse and recycling. Reuse means that the product is literally reused in a way comparable to the first use. Hence, a piece of clothing is used again as clothing, after cleaning and small repairs if necessary. Recycling, on the other hand, includes the collecting and sorting of waste and the processing in such a way that the old product ceases to exist and is made into new products, materials, or substances. In the case of textile, there

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<sup>3</sup> In 2016 for instance, 1.130.000 tons of clothing was bought in the UK, 200.00 tons more than in 2012, meaning that even in the economic crises, there was a substantial increase (WRAP.org.uk Valuing our clothes, the cost of UK fashion). Garments are used for 3,3 years – on average – a T-shirt's life expectancy is less with 2,78 years (WRAP report).

are two ways to recycle: mechanical or chemical. Mechanical means that the fabric is shredded until only fibres remain; studs, buttons, and zippers are filtered out. These fibres can then be used in the production of new products. In the chemical recycling process, chemicals are added to separate cotton fibres from other materials, mainly polyester.

A second distinction that can be made is between parts of the process that are regulated and parts that are unregulated and voluntary. Many people contribute to the reusing of old clothes. Some clothes are sold online, or to second-hand stores directly, other old clothing is donated to charities, which provide for special collection containers throughout cities. This happens on a voluntary and largely unregulated basis. Municipalities can decide how to facilitate this process by coordinating a collection from door-to-door, or special locations for collection, or even giving out permits to the charities' collection containers mentioned above. Mandatory national regulations exist for companies that, on average, produce more than 40 kilos textile waste per week, or 2,000 kilos per year.<sup>4</sup>

### **Finding the Legal Framework: Advanced Dumpster Diving**

It would exceed the scope of this contribution to provide a complete overview of the legal framework concerning the management of waste in the Netherlands. However, some understanding of the general structure will help us better understand the issue of textile waste. We will, therefore, limit ourselves to some general observations before narrowing down to the management of textile waste, and in particular residential textile waste, and the obstacles and opportunities about reuse and recycling.

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<sup>4</sup> Kennedy G (n 2).

### *1. European Laws on Waste*

The European Directive<sup>5</sup> on Waste<sup>6</sup> ('EU Waste Directive') determines under Article 1 that 'waste' is any substance or object that the holder disposes of, or is required to dispose of and is further detailed in the annexes to the EU Waste Directive. Article 4 places the obligation on Member states to take the necessary measures to ensure the waste is recovered and disposed of without endangering human health or the environment, and prevent abandonment, dumping or uncontrolled disposal. Under Article 3, Member States are required to take measures that encourage in the first place the prevention or reduction of waste production (for instance by the development of clean technologies or products that are biodegradable to a higher degree). In the second place, Member States are required to adopt policies that encourage the recovery of waste using recycling, re-use, or other ways in which secondary raw materials are extracted from the waste. Finally, Member States should pursue the reduction of the harmfulness of waste and the use of the waste as a source of energy. Article 6 and 7 of the EU Waste Directive obligate Member States to establish or designate a competent authority and make it responsible for the implementation of this EU Waste Directive in particular by drawing up a waste management plan which contains the particulars for the recovery and disposal of waste.

### *2. Dutch Laws on Household Waste*

In the Netherlands, the EU Waste Directive has been implemented in the *Wet Milieubeheer* (the Dutch Environmental Management Act [DEMA]). The DEMA

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<sup>5</sup> In general, EU "[d]irectives require EU countries to achieve a certain result but leave them free to choose how to do so. EU countries must adopt measures to incorporate them into national law (transpose) in order to achieve the objectives, set by the directive. National authorities must communicate these measures to the European Commission. Transposition into national law must take place by the deadline set when the directive is adopted (generally within two years). When a country does not transpose a directive, the Commission may initiate infringement proceedings." *Vid.*: [https://ec.europa.eu/info/law/law-making-process/types-eu-law\\_en](https://ec.europa.eu/info/law/law-making-process/types-eu-law_en).

<sup>6</sup> Council Directive 75/442/EEC of 15 July 1975 on waste [1975] OJ L 194/ 39; Amended by: Council Directive 91/156/EEC of 18 March 1991 L 78/ 32; Council Directive 91/692/EEC of 23 December 1991 L 377/ 48; Commission Decision 96/350/EC of 24 May 1996 L 135/ 32; Regulation (EC) No 1882/2003 of the European Parliament and of the Council of 29 September 2003 L 284/ 1; Corrected by: Corrigendum, OJ L 146/52 (hereinafter: Waste Directive).

provides, among others, the general legal framework for the management of waste. Article 10.1 provides the basis for the management or disposal of waste products and places a duty of care on the state (municipalities), companies, and citizens. Article 10.3 obligates the Minister for Infrastructure and Environment to create a general administrative regulation (*Algemene Maatregel van Bestuur*) known as the waste management plan (*Afvalbeheersplan*) – also referred to in the EU Waste Directive under Article 7. Article 10.4 of the DEMA provides a hierarchy that should be followed in the waste management plan, similar to Article 3 of the EU Waste Directive. This waste hierarchy can be traced back to the ‘Ladder van Lassink’ – named after Ad Lassink, one of the first and most influential Dutch politicians with regard to the policies of waste management and the impact of waste on the environment. This waste hierarchy is as follows: a) prevention; b) preparation for reuse; c) recycling; d) other useful applications, like (re)generation of energy; e) treat waste; and f) safe disposal (see figure 1).



*Figure 1. The Waste Hierarchy*

Next to the obligation to institute a waste management plan, the DEMA, under Article 10.21, places the responsibility on the municipalities to arrange the collection and disposal of residential waste. This collection must happen at the minimum once a week on a door-to-door-basis. Biodegradable waste must be collected separately, and the municipality can decide to also facilitate the separate collection of other types of differentiated residential waste (glass, metal, plastic, paper, or textile). Municipalities are not obligated to do so, but most municipalities have a differentiated waste collection.

The DEMA obligates municipalities to make a municipal waste regulation.

Herein, rules must be put in place that further regulates the collection of waste, and that prevent waste dumping (art. 10.23-26 DEMA). These municipal regulations differ from municipality to municipality. Contained in these regulations are also the specific details of textile waste collection per municipality. As stated before, there is no hard obligation for municipalities to arrange for the collection of textile waste. They do, however, have an obligation to oversee and regulate initiatives of textile waste collection by collection companies or charities. In particular, whether such companies or charities collect and transport such waste safely and in line with the rules set out in the EU Waste Directive, and the DEMA as textile waste still qualifies as waste.

The municipality of De Ronde Venen in the Netherlands has, for example, a detailed policy in which it specifies that inhabitants of the municipality can dispose of their textiles by a) door-to-door collections by charities, which take place four times per year; b) drop-off facilities in the form of thrift-shops, churches, and waste-drop-off stations; and c) drop-off facilities in the form of textile donation containers throughout the municipality which are emptied periodically by the local recycling company.<sup>7</sup> The municipality of De Ronde Venen only allows charitable initiatives that have been vetted and approved by an independent auditor (Het Centraal Bureau Fondsenwerving ‘*Central Bureau of fundraisers*’) to apply for a permit. The municipality, for efficiency purposes, only allows four charitable initiatives per quarter and rotates every quarter between the applicants that have met the criteria to receive a permit.

Many municipalities have similar municipal policies. The municipality of Utrecht is interesting to mention here, as it has a completely streamlined online application process for initiatives that would like to receive a permit to collect and further take care of textile waste. Another recent development is that brands and retailers offer a “recycle your clothes” scheme to their customers. H&M and

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<sup>7</sup> Art. 1.1 Municipal policy regulations textile collection De Ronde Venen, *vid.*: [decentrale.regelgeving.overheid.nl](http://decentrale.regelgeving.overheid.nl).

C&A,<sup>8</sup> for instance, offer the possibility to drop off old clothes (any brand and any condition) at their stores. After that, in both cases, I: CO<sup>9</sup> takes over, an international textile collection company.

### *3. Dutch Laws on Corporate Waste and Companies*

Contrarily to household waste, there are specific rules obligating companies to collect separately and sort a limited list of waste categories. Under Article 10.37 of the DEMA companies are bound by the rules that apply to ‘establishments’ which are defined as companies, or company-like establishments that exploit a business or undertake similar activities (art. 1.1 DEMA). Such establishments are obliged to arrange for the disposal of their waste. The disposal has to be carried out by businesses that are authorised to do so. The more dangerous or potentially harmful the waste is, the stricter and more detailed the framework and licensing requirements are (art. 10.40-50 DEMA). Establishments also have a far-reaching obligation to keep a record of the way in which they disposed of the waste (time, place, amount, type, manner of processing, etc.) ex-art. 10.38 DEMA.

The obligation for companies to separate, to keep separate, and to dispose of waste separately follows from the conditions of a special permit required under the DEMA. This is required for a particular subset of companies; mainly, the ones come into contact with specific hazardous or noxious substances. These companies are designated in Appendix I of the ‘Besluit Algemene regels voor establishments milieubeheer’ (‘Decree on general rules for environmental management of establishments’). For regular companies (that do not fall under Appendix I) the obligation to separate, keep separated, and to dispose of waste separately follows from the Decree on general rules for environmental management of establishments. For these ‘regular’ companies the separation of waste is mandatory for waste that

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<sup>8</sup> Winkels Zoeken, ‘Let’s Give Our Clothes More Than One Life’ (C&A, 2018) <<https://www.c-and-a.com/nl/nl/corporate/company/duurzaamheid/wetakeitback/>> accessed 2 July 2018.

<sup>9</sup> ICO, ‘Join The I: Colution Rethink, Reuse, Recycle, Renew’ (I:CO, 2018) <[ico-spirit.com](http://ico-spirit.com)> accessed 11 July 2018.



qualifies as a “dangerous substance” as listed in the Appendix to the *‘Regeling scheiden en gescheiden houden van gevaarlijke afvalstoffen’* (‘Regulation on the Separation and Separate Keeping of Dangerous Substances’). All other waste – i.e. waste that is not listed in the Regulation on the Separation and Separate Keeping of Dangerous Substances must also be separated, kept separate, and offered separately unless this would place an undue burden on the company. This has been further specified in the *‘Richtlijn voor redelijkerwijs afvalscheiden door bedrijven’* (‘Regulation for Reasonable Waste Separation by Companies’). In this regulation, a threshold amount is given in kilos per week. To give some examples, for paper and carton, electric equipment and foil, the threshold amount for separation is zero kilos, for glass the threshold amount is 30 kilos, for biodegradable waste the threshold amount is 200 kilos, and lastly for textile, it is 40 kilos.

#### *4. Intermediate Conclusion*

About textiles, the following situation emerges, consumers are under no obligation to separate textile waste. Municipalities, however, do facilitate the separate collection of textile waste through charitable for-profit and non-profit initiatives. For companies, on the other hand, there is an obligation to separate textile waste as far as these places no undue burden upon them. These circumstances make that the quintessential textile waste, a worn-out white T-shirt, only has a mediocre chance of being collected separately. What happens after collection is still unclear.

#### **Life After Separation**

To keep it specific, let’s continue with the example of the above-mentioned white T-shirt. After being discarded, there are three possible paths it may take to find its new destiny. The before mentioned waste hierarchy when applied to a discarded white T-shirt prescribes the reuse of the object, then recycling in the form of up cycling or down cycling, followed by other useful applications, mostly energy (re) generation. The first step in the hierarchy, i.e., prevention, and the last step, i.e., safe disposal, are not directly relevant in the context of a discarded white T-shirt.

In the Netherlands, about 70 million kilograms of discarded textiles are collected from household and company waste every year.<sup>10</sup> Those who have collected this waste (charitable initiatives, non-profits, and commercial collection companies) pre-sort the waste themselves or transfer it immediately to textile sorting companies, except for second-hand clothing stores. These sorting companies, broadly speaking, separate the textile waste into three categories: textiles suitable as second-hand clothing (55 per cent), textiles suitable to be made into cleaning rags or textiles to be recycled (together 37 per cent), and as a rest category, textiles suitable for incineration (eight per cent).

### *1. Reuse: Second-Hand Clothing*

Reuse is the second stage of the waste hierarchy (see figure 2). Textiles suitable to be sold as second-hand clothing are sorted by hand into commercial categories (female/male/children, summer/winter, brand/no-brand, quality, and material). High-end garments are sold to second-hand stores, lower-end garments are pressed into bulks of 25, 50 or 100 kilograms and exported to second and third world countries.<sup>11</sup> Based on geography and climate, bulks of summer clothing tend to be exported to African countries, while bulks of summer and winter clothing are exported to Pakistan and India.<sup>12</sup> Domestic or regional reuse of second-hand clothing is, of course, a good thing as most studies reveal that it has environmental benefits.<sup>13</sup> And while the reuse of second-hand clothing for export to second- and third world countries seems *prima facie* to also be a good use of second-hand clothing, a better understanding of ethical and sustainably conscious waste management would lead to a different conclusion. One has, of course, to consider the environmental impact of collecting, sorting, and above all, the shipping of these garments to far away continents.

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<sup>10</sup> Nudge, 'Lever Al Je Oude Textiel In' (*Nudge*, 2018) <<https://www.nudge.nl/projects/vod-den/>> accessed 12 July 2018.

<sup>11</sup> Textiel Recycling, 'Vereniging Herwinning Textiel' (*Textiel Recycling*, 2018) <<https://www.textielrecycling.nl/onze-brancher/het-proces.html>> accessed 22 June 2018.

<sup>12</sup> *ibid.*

<sup>13</sup> Gustav Sandin and Greg M. Peters, 'Environmental Impact of Textile Reuse and Recycling, a Review' (2018) 184 *Journal of Cleaner Production*. [353].

Moreover, the governments state that these cheap exports also threaten the domestic markets in many developing countries in terms of wages and working conditions and have a crowding-out effect on domestically produced garments. That is: if domestic garment industries in third world countries need to compete with donated bulk imported second-hand garments from the West, they can either further compromise on the quality of the materials or the working conditions and wages of the workers, neither seem to be advisable nor ethical. One could even go as far as to say that driving down the wages of dressmakers in low-income countries to satisfy our compulsion to look smart is misdirected and toxic and decidedly unmoral. It is not surprising that the governments of Uganda, Tanzania, and Rwanda have in recent years started pushing for a ban on the import of second-hand garments from the West to protect their domestic industry.<sup>14</sup> Others state that this is an oversimplified image of reality and that economic liberalisation has also played a role in the cause of the problem.<sup>15</sup> To complete the range of viewpoints, it is also argued that there is a flipside to the ban on second-hand clothes: people do not have the means to afford new clothing and jobs in the second-hand trade, also in the developing countries, will be lost.<sup>16</sup> The second-hand clothing trade provides self-employment opportunities, and there are local economic benefits.<sup>17</sup>



**Figure 2.** *The Waste Hierarchy, Stage 2: Reuse Waste*

<sup>14</sup> Susanne Maria Krauß, 'East Africa Pushes Second-Hand Clothing Ban' (*DW.Com*, 2018) <<https://www.dw.com/en/east-africa-pushes-second-hand-clothing-ban/a-42747222>>.

<sup>15</sup> Andrew Brooks, *Clothing Poverty: The Hidden World of Fast Fashion and Second-Hand Clothes* (Zed Books Ltd 2015). [Chapter 6 *Second-Hand Africa*].

<sup>16</sup> Lauren Gambino, "'It's about Our Dignity": Vintage Clothing Ban in Rwanda Sparks US Trade Dispute' (*The Guardian*, 2017) <<https://www.theguardian.com/global-development/2017/dec/29/vintage-clothing-ban-rwanda-sparks-trade-dispute-with-us-united-states-secondhand-garments>> accessed 4 July 2018.

<sup>17</sup> Andrew Brooks (n 15). [chapter 7, *Persistent Poverty*].

A final circumstance we have to consider is that those second-hand garments, when disposed of by their second user, tend to end up in landfills or to be incinerated in sub-optimal facilities, which pollute more and don't allow for energy regeneration.<sup>18</sup> In conclusion, it might very well be preferable to incinerate our second-hand garments that are not suitable for sale in our regional second-hand market, in contrast to the current practice of shipping them in bulk to second and third world countries.

## 2. *In-between Reuse and Recycling: Cleaning Rags*

If a white T-shirt is not suitable for reuse as a second-hand garment, the next option would be recycling in the form of rags. Large pieces of textile are sorted out; buttons, zippers, and the like are removed; and they are then cut into rectangles. These are then used for different purposes. Larger pieces are put together and can be used, for instance, by moving companies. Smaller pieces are mainly used as filling or as isolation material, particularly in the car manufacturing industry. These are just a few examples. This form of recycling gives textiles another (limited) lifetime before it is finally thrown away.<sup>19</sup> The last option that sits in-between reuse and recycling is that sometimes clothing is made from scraps and small pieces of old clothing. These are then combined into an eclectic mosaic-like garment and marketed as a *certain* style.<sup>20</sup>

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<sup>18</sup> “A typical solid waste management system in a developing country displays an array of problems, including low collection coverage and irregular collection services, crude open dumping and burning without air and water pollution control, the breeding of flies and vermin, and the handling and control of informal waste picking or scavenging activities. These public health, environmental, and management problems are caused by various factors that constrain the development of effective solid waste management systems. They can be categorised into technical, financial, institutional, economic, and social constraints.” ; Van de Vreede & Sevenster, ‘The Role of the Private Sector in Developing Countries: Keys to Success’, *ISWA Conference on Waste Management - Role of the Private Sector, Singapore (24-25 September 1995)* (2010).[34].

<sup>19</sup> *ibid.*[34].

<sup>20</sup> Modint, ‘Recycled Fibers, From Virgin to Eternity, CR Factsheet’ (*Modint*, 2015) <<http://modint.nl/2015-09-03/wp-content/uploads/2015/09/3.-recycled-fibers-dh-28.10.14.pdf.pdf>> accessed 22 June 2018.

### 3. Recycling

The next step in the waste hierarchy (see figure 3) is recycling. This means that the fabric is graded into type and colour, the textiles are then shredded into fibres (fiberising), also known as fibre fluff. Depending on the intended use, this fibre fluff is then mixed with other selected (virgin) fibres. This blended mixture is subsequently cleaned and bleached if necessary.<sup>21</sup> The new fibres can be used for different applications. Most of these applications are non-woven fabrics, as the spinning of recycled fibres into yarn is complicated and costlier compared to the non-woven applications. A thorough market analysis from Chang, Chen, and Francis has identified the following suitable product areas for the application of these fibres: carpet cushion, home insulation, fibre stuffing, clean-up products, mattress pads and futons, geotextiles, landscaping, and concrete.<sup>22</sup> These applications are based upon three principles: first, the use of the fibre fluff does not sacrifice the performance of the product it is used in; second, the use of fibre fluff is competitively priced compared to its alternatives; and third, reprocessing is not needed (e.g., cleaning, dyeing, or finishing) except for shredding into fibre fluff.<sup>23</sup>



**Figure 3.** The Waste Hierarchy, Stage 3: Recycle Waste

New types of fibres, PLA-fibres (polylactic acids<sup>24</sup>) for instance, bridge the gap between synthetic and natural fibres. They are used in medical, packaging, and

<sup>21</sup> *ibid.*[2].

<sup>22</sup> Chang Y,[*et.,al*] 'Market Applications for Recycled Postconsumer Fibers' (1999) 27 Family and Consumer Sciences Research Journal.[320-340].

<sup>23</sup> *ibid.*[334].

<sup>24</sup> Polylactic acid (*PLA*) is an environmentally friendly, plant-derived thermoplastic.

clothing applications. These new fibres are biodegradable and can easily be composted after having been discarded (and shredded). This compost functions as a soil nutrient.<sup>25</sup> A downside to this remains that small amounts of methane gasses are produced.<sup>26</sup>

Another option is recycling fibres into new clothing. The recycling process is significantly different for non-organic textiles, in particular nylon and polyester than for organic textiles, and blended materials.<sup>27</sup> The non-organic textiles have to be granulated after shredding. When the textiles are chemically treated, new fibres can be extruded. In theory, the advantage of recycling is that both organic and nonorganic fibres can be used again and again, replacing the need for the use of new virgin fibres with each cycle. However, textile fibres will gradually decrease in quality and won't (even if mixed with new virgin fibres) be spinnable into yarn. Hence, they ultimately end up in waste disposal and, as is the case in the Netherlands, will be incinerated. However, most studies show that from an environmental impact perspective, recycling is preferable to incineration. Recycling usually results in less pollution and energy use compared to the production of textiles from new raw materials.<sup>28</sup>

Recycling is however, not widely applied. The fibres offered for recycling are often mixed in terms of material (polyester, elastane, cotton, wool, viscose, silk, etc.) and colour. Through the process of shredding, the fibres become very short and are therefore unsuitable for the production of high-quality clothing,<sup>29</sup> unless mixed with new fibres. There are some developments in the technology that make better fibre recycling and selection possible. Recycling of textiles does not yet seem

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<sup>25</sup> Since lactic acid is widely found in nature, a large number of organisms metabolise lactic acid. The result of composting is carbon dioxide, water, and humus, a soil nutrient.

<sup>26</sup> Avinc O and Khoddami A, 'Overview of Poly(Lactic Acid) (PLA) Fibre: Part I: Production, Properties, Performance, Environmental Impact, and End-Use Applications of Poly(Lactic Acid)' (2009) 41 *Fibres*, *Fibre Chemistry*. [391].

<sup>27</sup> Ellen MacArthur Foundation, *A New Textiles Economy: Redesigning Fashion's Future* (Ellen MacArthur Foundation 2017) <<https://www.ellenmacarthurfoundation.org/publications/a-new-textiles-economy-redesigning-fashions-future>>. [94].

<sup>28</sup> Sanders G and Peters GM, 'Environmental Impact of Textile Reuse and Recycling' (2018) 1 *Journal of Cleaner Production*.; Modint (n 20). [2]. Life cycle assessment for reuse/recycling of donated waste textiles compared to use of virgin material: An UK energy saving perspective, Anne C. Woolridge, Garth D. Ward Paul S. Phillips Michael Collins, Simon Gandy.

<sup>29</sup> Van de Vreede & Sevenster (n 18). [34].; Ellen MacArthur Foundation (n 27). [91].

economical viable in mainstream operations. The underlying reasons include that the existing techniques for the collecting and sorting of the clothes into the right fabric and colour separation still need to be improved to be able to compete with virgin fibres.<sup>30</sup> There are innovations in the sorting process that might contribute to a faster and more accurate sorting of the collected textiles by material and colour, such as an automated sorting machine.



**Figure 4.** *The Waste Hierarchy, Stage 4: Recover Energy*

#### *4. Incineration and Energy Renewal*

The fourth stage in the waste hierarchy (see figure 4) is either incineration, which is done with or without energy renewal, or the T-shirt ends up as landfill. If the incineration is done in a modern waste incineration installation, energy in the form of heat or electricity can be extracted from burning the T-shirt and thus the last benefit of the white T-shirt is used. The incineration of organic textiles is preferable above ending up as landfill because, in this way, the incineration has a small positive impact on the environment compared to being put into a landfill: it saves the use of a very small amount of fossil fuels.<sup>31</sup> While the incineration of synthetic fibres, and in particular polyester, has a small negative environmental impact, this negative impact is largely offset by the energy renewal possibilities. This extraction of energy through incineration has a positive environmental effect because it displaces fossil fuels that would otherwise have been necessary to generate (part of) that energy. These fossil fuels have, in comparison, a significantly more negative environmental

<sup>30</sup> Ellen MacArthur Foundation (n 27).

<sup>31</sup> Van de Vreede & Sevenster (n 18).[36]

impact.<sup>32</sup> In the city of Amsterdam, for instance, the streetlights, trams and metro, and 75 percent of households are all powered by electricity extracted from the incineration of the city's residential waste.<sup>33</sup> On the other hand, wind energy is always cleaner and does not cause black carbon and pesticides flying in the air, nor the new CO<sub>2</sub> caused by the burning. But wind energy is not the issue here. The issue is: what to do with an old white T-shirt.

### Conclusion

The focal point of this contribution had been a discarded white T-shirt. In the first place we have elaborated the European and administrative legal framework for the disposal, separation, reusing, and recycling of waste, and textile waste in particular. We have found that these regulations are so complicated that they are nearly incomprehensible for citizens, businesses, and sometimes even municipalities. These rules and regulations are so general and left to municipalities to implement, that there are multiple variations in the collection of separate waste streams across the Netherlands.

As a result, compliance and enforcement are not going as smoothly as they could. If we want to be serious about the implementation of sustainability policy claims, such as *cradle-to-cradle* and *circular economy*, the central government will need to act. Separation of waste is not yet mandatory or required from citizens in discarding their household waste. If we look at companies, on the other hand, obligations to separate waste exist mainly about dangerous or hazardous substances. For regular company waste, said obligation exists only in as far as it places no undue burden upon them. While trust in the benevolent and environmentally conscious spirit of citizens and businesses alike is wonderfully idealistic, it is not realistic.<sup>34</sup> And also symbiotic to the dealings of the governments themselves, which on the

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<sup>32</sup> *ibid.*[36].

<sup>33</sup> AE Bamsterdam, 'Raadscommissies Bezoeken AEB' (*AE Bamsterdam*, 2015) <<https://www.aebamsterdam.nl/over-aeb/nieuws/2015/werkbezoek-raadscommissies/>> accessed 22 July 2018.

<sup>34</sup> J. Bakan, *The Corporation. The Pathological Pursuit of Profit and Power* (Free Press 2004).[45].



one hand want to work towards a circular economy and recycle as much as possible, and on the other hand encourage consumerism by authorising big companies known for selling cheap and disposable clothes to set up many new shops in their malls. However unfortunate, we must conclude that the business world, as well as consumers, are a mask behind which a variety of people are hiding. Of those people, it cannot be said in a general sense that they are worthy of the blind trust we put into them, thinking they all will separate their waste. The current framework, which to a large extent is built on such behavioral trust, results in much of our waste being wasted, i.e., incarcerated or put into landfills. If our government is serious about its environmental and moral aspirations, more directive regulation is necessary. For example, at the very least it should be made mandatory for all citizens and companies to separate all waste that can be recycled, including, textiles. It should also be mandatory that municipalities collect these wastes separately. If the government would aim to implement its circular economy policy objectives seriously, it should further stimulate the separation of textile waste by material and colour. However, the paradox is that more governmental interference mostly means more administrative law, resulting in an ever exponentially expanding legal framework. While this in our eyes is not a problem in and of itself, our government sometimes hides behind the policy objective of reducing bureaucracy for companies.

The current state of affairs is in two ways comparable to the cautionary tale of the Emperor's new clothes. In the first place, our society has become vain and materialistic: enter the emperor. We produce to discard and discard to produce. We buy products that are competitively priced, keep up with the latest fashion and then in the blink of an eye get rid of them again — not considering the costs beyond the high street price. We throw them away not because they have become useless, but because we want to wear something newer, something even more fashionable. Our clothes are not made to stand the test of time, but to be replaced as quickly as possible. The tragedy is that such products and such clothes, in particular, are, by their very nature, ill-suited to be reused or recycled; they are made to be disposed of. Other policy options include stimulating research and upscaling pilot projects in

recycling fibres, nudging policies aimed at consumers to keep their clothes longer and taxing new cloths higher to provide a disincentive to buy too many cloths, like with alcohol or cigarettes.

The second way in which we are similar to the unfortunate emperor is that in the end, we are quite naked. We might believe that because of our mountain of bureaucratic rules and regulation concerning waste, recycling, and reuse, we are doing a good job; that we are paying our dues to Mother Earth. Alas, our focus at the end of the textile lifecycle is window dressing at best. Focusing our efforts on the beginning and middle of the cycle could have a true environmental impact. Other designs, made to last and to be recycled, made to be sustainable; better use of raw materials; and a more conscious production and consumption process; all provide excellent opportunities to make some real changes in the environmental impact of textile products. But sufficiently effective rules are only a distant melody. We believe and keep telling ourselves that our closely-knit rules on the management of textile waste are enough to get us onto the right path, that this is all that is needed to do a great job for the environment. But in the end, like the emperor, it turns out we are naked and exposed because we are depleting the environment completely.

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