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Collecting and Sorting Second Hand Clothes:

The Practice of Circularity and Social Inclusiveness in Textile Waste Management in Dutch Municipalities

MSc Economic Geography:

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Abstract
The fast disposal nature of fashion and throwaway culture is resulting in serious environmental, social and economic problems. The awareness that something is wrong in the textile waste policy in the Netherlands, has only recently been given a voice. The EU and the Dutch government have set goals towards a more circular textile waste management of which Dutch municipalities are responsible. Recently, often their goal is to be both circular and social inclusive. This research investigates the conditions to make a municipalities' textile waste management work, both in terms of circularity and social inclusiveness. In order to determine what these conditions are, an intensive explorative research design was chosen. A multiple case study was conducted in which the municipalities of Groningen and Leeuwarden were examined. Qualitative data was generated from policy documents, including information from a WOB request. In addition, seven semi-structured interviews were conducted with several parties along the domestic part of the supply chain and experts in the field of textile waste management. The interviews have been coded and analysed using ATLAS.ti. The data revealed that, in both municipalities, several problems need to be resolved in order to be able to comply as a circular and social inclusive textile waste management. First of all, the conceivable indication emerges that the combination of circularity and social inclusiveness is not self-evident. However, if this combination is still to be pursued, a main condition to be met is that the staff continuity of executing social enterprises should not be under constant pressure. Likewise, if the social benefits of collecting and sorting with people with a distance to the labour market exceed the social costs, these social enterprises should not suffer from a deteriorated financial situation caused by poor and dirty textiles. At the same time, better legislation and regulations should be imposed on the international textile waste flow. Better legislation could lead to the counteraction of both the surplus of primary and secondary textile and its poor quality. Moreover, cooperation must take place between different actors on different scales and there must be transparency throughout the chain. The findings of this study give cause to investigate how the conditions found could be met and which research to prioritize, since subsidies for research seem to be provided arbitrarily. Lastly, research could be devoted to whether the combination of being both circular and social inclusive in a municipalities' textile waste management is desirable.

Keywords: second hand clothes, circular economy, sustainability, social inclusiveness, textile waste management

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1. Introduction

1.1 Background

''Disposal nature of fast fashion and throwaway culture is resulting in a serious environmental, social and economic problem. In the last two decades not only the textile industry has doubled the production but also an average global annual consumption of textiles has doubled (from 7 to 13 kg per person)''

- *(Shirvanimoghaddam et al., 2020).*

The high rate of population growth, improved global incomes and higher living standards, have resulted in a steady increase in textile production and consumption of textiles and fibres in the past few decades (Shirvanimoghaddam et al., 2020). At the same time, there is the global development of raw materials becoming scarcer and more expensive. If we continue to use resources in the same way, we will need two Earths by 2050 (Moore et al., 2050). That is why the European Commission has published a roadmap in which it indicates how it intends to organize the efficient use of raw materials in Europe (VERAM, 2018). Also, the National Government has ambitions towards a more circular waste management, for example, 75% of household waste should be recycled in 2020 (VANG, 2016). This has proven impossible, especially for large cities, the targets were not compulsory. Textiles are part of household waste. The textile industry is one of the most polluting sectors in the world, generating a substantial environmental footprint from cultivation (e.g. cotton), fabric manufacturing, to landfill disposal of post-consumer items. The textile and apparel industry are no longer able to hide from these facts. To reduce the environmental footprint and the use of natural resources, it is essential to adopt a more sustainable behaviour in the industry. In practice this means that the way we use textiles needs to change at a fundamental level (Shirvanimoghaddam et al., 2020).

1.2 Problem Description

The post-consumer textile alone has many challenges, and it is striking how unaware most people are of what happens to their cast-offs after disposing them (Norris, 2012). Clothes are often not thrown away when they have had their best time, but rather when much of their potential lifetime is left (Farrant et al., 2010). There are two common places where textile is found after it has been disposed. Either in the residual waste, its destination is then most likely the incinerator, or in a clothing container, its destination is then not clear. When you decide to put your clothes in a clothing container, e.g. of a charity organization, it is assumed by many people, that these clothes are distributed for free in poor or less developed countries in for example Africa or Eastern Europe. This is usually not the case; many charitable organizations keep only a small part of the collected clothing aside for disasters and emergencies. The rest of the collected clothes are sold at social prices in their second-hand clothing stores, or they are sold to textile sorting companies (Farrant et al., 2010). The fact that charity organizations do not distribute clothing for free in poor countries, does in many cases not diminish their nobility. Selling clothes is a good way to raise money for the charities they represent (Kim & Kim, 2016).

The second-hand clothing market is often considered to be a niche market that we don't have to worry about. This is a wrongly made assumption. The Netherlands alone exported about 136,1

kilotons (worth of €472.096.800.076 euro) of second hand clothes, textiles, rags and fibres all over the world in 2018 (Rijkswaterstaat, 2020, COMTRADE, 2018). These cast-offs are the lynchpins of the highly profitable global export trade of second-hand clothes (Baden & Barber, 2005; Frazer, 2008; Norris, 2012). It is a multibillion-dollar industry and it will continue to make a huge impact on the clothing industry all over the world (Herjanto et al., 2016; Wilson and Thorpe, 2000). The cast-offs are transformed into commodities, it is the work of sorters to create exchange-value, from the charity shop volunteer to the textile recycler, importer, local market retailer and itinerant seller (Norris, 2012). The second-hand clothing ends up all over the world, but what happens to it is unclear.

When we focus on the Netherlands, the most important parties in the second hand clothing market, are the municipalities. Municipalities are responsible for the management of waste. It appeared from mail correspondence with a representative of the municipality of Groningen that many municipalities have municipal waste regulations. It states that it is prohibited to collect household waste in the municipality, except when a party has been designated by the municipality as a collector and has received a collection permit from the municipality. Discarded textiles from households are included in household waste. Many municipalities are working on issuing collecting permits to parties who want to collect textiles. Municipalities are often approached by all kinds of parties who want to collect textiles, one-off or structurally. On the basis of efficiency, municipalities can choose which and how many parties they will issue a collection permit. Some municipalities opt for tendering procedures whereby parties can tender for specifications regarding the collection of textiles (Personal Communication with a representative of the municipality of Groningen, July 6th, 2020).

Over the years, things have changed in the way textiles are dealt with. The collection and sorting of clothing and textiles has traditionally been done by charity organizations like The Salvation Army and Sympany (former KICI and Humana). They could collect these clothes for free. With the sale of these textiles, funds were raised to finance social projects at home and abroad (Rijksoverheid, 2019). Due to the high return on second hand textiles, many parties became interested in the collection and sorting of second hand textiles. In 2010 the trend started that municipalities tendered the collection and sorting process to third parties (NVRD, 2011). In other words, the textile waste of the municipality became a source of income for the municipality. Charity organizations could still claim the tender, but now they had to pay a fixed amount per kilogram of clothing collected through public clothing containers. In addition, they had to compete against other charities and even commercial companies, who could pay the municipality a higher price per kilo. Often charities could not compete with these commercial parties. In short, this financial incentive became the biggest motivation to choose an organization for carrying out the textile waste process (NVRD, 2013). In the meantime, returns have fallen sharply due to declining interest in second-hand clothing and textiles from abroad, as well as increased pollution of textiles and low-quality textiles. The combination of all these different factors has ensured that the business model of parties that carried out the collection and sorting of second hand textiles has come under pressure. In many cases they were no longer cost-effective (Rijksoverheid, 2020). Many parties have now realized that it is impossible to proceed in this way. On October 9th, 2019, a pressing letter was also sent to the House of Representatives in which, among other things, this problem was raised (Rijksoverheid, 2019). In addition, this letter also focuses on the social and ecological footprint of textile in the waste phase.

The awareness that something is wrong in the textile waste policy in the Netherlands, which is emphasized in this letter, has only recently been given a voice. A number of frontrunners have already started to reform waste policy. What is central to this new policy is the circular economy. The textile chain should be circular, generate environmental gains and be transparent. In addition, the policy must generate social inclusiveness. Textiles must be sorted by people with a distance to the labour market and then processed in a transparent and responsible manner (Circulus-Berkel, 2017).

The first priority for municipalities and sorters should be on sustainability rather than primarily view textile waste as a source of income. In order to obtain textile waste from municipalities, either through an awarded collection permit or a tendering procedure, there are other conditions. The requirements of 'circular' and 'social inclusive' are considered as essential criteria for obtaining the permit or the tendering process. This must lead to the establishment of a sorting centre in the region, which offers a place to work for people with a distance to the labour market. Such initiatives are often established in cooperation with reintegration corporations or social workplaces. It seems to be a well-intended idea, however, to what extent do these two objectives, circularity and social inclusiveness, go together? Besides, collecting and sorting at a local/regional level, also fragmentates the collection and sorting process, which might obscure the view of the waste process. Furthermore, different municipalities have different implementation of the policy. Finally, it can be agreed upon in advance to be circular and social inclusive, but how is this maintained in practice?

1.3 Research objective

Much has changed in the past 10 years, and in recent years the realization has started that things have to change drastically. The aim of this research is to explore which conditions a municipality must meet in order to make its textile waste policy both circular and social inclusive. In order to gain this insight, research is being conducted into what the textile waste management in the Netherlands currently looks like. Partly given the time limitation, it was decided to investigate two case studies, the municipalities of Groningen and Leeuwarden.

The municipality of Groningen and Leeuwarden have been chosen for various reasons. First of all, they both have an urban character. According to the Ellen MacArthur Foundation (2015), urban areas have better characteristics to implement the circular economy than rural areas. That is because these urban municipalities have a relatively large budget, and firms work on a relatively large scale. Although both municipalities have a different number of inhabitants, they are respectively considered ‘extremely urbanized’ and ‘moderately urbanized’ according to the CBS (2020b).

Moreover, the municipality of Groningen clearly expresses their ambition to implement the circular economy in their policies by following the national government's ambition to move towards a circular economy. Their goal is not only a clean and sustainable city, but textile waste must also generate money and regional jobs for people with a distance to the labour market (Gemeente Groningen, 2015).

In the municipality the Leeuwarden, this ambition is not so clearly expressed. However, they signed the national raw materials agreement, in which the wish is expressed, to be circular in 2050 (Grondstoffenakkoord, 2017). They also want to meet the ‘VANG’ goal, which is to reduce the residual waste to a maximum of 100 kilogram per person per year (VANG, 2016).

Based on their similarities and differences, these two municipalities form interesting cases. On the basis of these cases, it will be possible to examine which conditions are necessary for the textile waste policy of Dutch municipalities to work in terms of circularity and social inclusiveness.

The central research question is:

'What are the conditions to make a Dutch municipalities' textile waste management work both in terms of circularity and social inclusiveness?'

This question is divided into five sub-questions.

- *How are circularity and social inclusiveness defined in the context of textile waste management?*
- *How is textile waste management organized, in terms of policy and implementation?*
- *What (formal) requirements and associated goals must be met by the executing party/parties in order to carry out a municipalities' textile waste management?*
- *How are these (formal) requirements and goals monitored and being complied with in practice?*
- *Which actors play a role in the textile waste process and how are they connected?*

The research questions are answered on the basis of scientific theory, information obtained from policy documents and on the basis of the empirical research.

1.4 Societal and scientific relevance

The societal relevance can strongly be related to the research objective of this study. The main concern is that man is dramatically impoverishing the Earth's resources and the welfare of future generations is severely at risk if not already endangered (Predazzi, 2012). Our society needs to reorient and develop future-oriented solutions that help to sustain humankind and its needs. It is vital that concepts that enable sustainable development evolve and methods are developed that allow more thoughtful treatment of resources, such as textiles. Not only to give the municipalities of Groningen and Leeuwarden a handle on what steps they can take towards a 'better', more circular and social inclusive, future, but the whole of the Netherlands, the European Union, and beyond. The (secondary) textile chain is global, but first steps can be taken locally.

The scientific relevance lies in gaining in-depth knowledge about the conditions for circular and social inclusive textile waste management to operationalize it in textile waste management. Once drivers and hurdles of textile waste management have been identified, it becomes clearer what needs to be tackled in order to give more attention to circularity and social inclusiveness. First, attention may be awarded to aspects being of high importance to achieve circularity and social inclusiveness in textile waste management. Conclusions and recommendations can be made that ultimately enrich decision-making from affected and effecting stakeholders. Receiving new insights and recommendations might also motivate the two municipalities and its stakeholders to prospectively revise their vision on textile waste management. Gaining in-dept knowledge can provide other municipalities in a similar context with a conceptual approach to identify which policies in place need adjustments. Municipalities in a different context might draw inspiration regarding suitable solutions for overcoming barriers and enhancing enables. A concrete vision can be employed in order to avoid hurdles and be more

successful in the operationalization of circularity and social inclusiveness straight away in textile waste management. Subsequently, practical implications of this vision can be set in motion.

In addition, this study is relevant because it helps to close the gap between science and society. Problems in society are investigated and (partially) unravelled in scientific research, but in many cases are not made clear to the laymen. It is important to stimulate the dialogue between science and society (Predazzi, 2012). The problems in textile waste management that have arisen in the past decades on a mondial and local scale are partially known to the connoisseur. This thesis can hopefully provide insight to policymakers, laymen and society as a whole.

1.5 Reading guide

In the introduction the problem description has been introduced as well as the research objective and relevance of this research. In the following chapter 2, an overview of the academic theoretical background is presented. In the chapter 3 the used data and methods are introduced. Chapter 4 presents the main results of this research. These results are reflected on and discussed in the concluding chapter 5, a couple of policy implications ensue from this and some directions for further research.

2. Theoretical Framework

The theoretical framework elaborates on the theories that this research is based on. The core concepts, principles and ideas will be discussed and placed in the broader context of sustainable development and the circular economy.

2.1 Circularity

A concept to operationalize sustainable development is the so-called 'circular economy', which arouses great interest from practitioners and scientists in the economic sector (Kircherr et al., 2017). Since the late 1970's – when most of the world was waking up to the awareness of environmental limits of our planet (Brundtland et al., 1987) – the concept of the circular economy has been gaining momentum (Ellen MacArthur Foundation, 2013). It implies the requirement to shift from the traditional linear model, which relies on the 'take, make, dispose' model, and turn towards a more restorative economy in which resources are kept in use for as long as possible. The maximum value from those resources are extracted while in use, and then products and materials are recovered and regenerated at the end of each service life for a generation of new products (Cattermole, 2018; Shirvanimoghaddam et al., 2020). Ideally, the circular economy would not generate any waste at all, since all materials remain in a circulating manner within the system (Ghisellini et al., 2016).

Therefore, it is not surprising that increasingly the concept of circular economy is treated as a solution to waste generation (Lieder & Rashid, 2016). It would reduce resource scarcity, which in turn has economic, environmental and social benefits. There are economic benefits, because less resource dependency would lead to less import dependency. It creates environmental benefits, because less resource extraction and disposal of waste offers less environmental burden. And if offers social benefits, since the threat for human health driven by environmental impacts of extraction and disposal is reduced. In addition, the need to reintroduce resources into the economic system offers new employment possibilities (Ness, 2008; Stahel, 2014; Zhijun & Nailing, 2007). As such, the circular economy is an alternative growth strategy which might be able to decouple economic growth from environmental impacts and offers a way to a more sustainable world (Ghisellini et al., 2016; Reike et al., 2018).

2.2 Different schools of thought

Different schools of thought have contributed to the concept of circular economy. It is not possible to trace the exact origin of the concept, as various stories circulate. It is clear, however, that various concepts share features with what the contemporary understanding of the circular economy incorporates. It sounds plausible that various features and contributions from a variety of concepts were incorporated in the concept of the circular economy. For example, Stahel & Reday (1976) conceptualised a loop economy to describe industrial strategies for waste prevention, regional job creation, resource efficiency, and dematerialisation of the industrial economy (Ellen MacArthur Foundation, 2013). There are many different features and contributions from a variety of concepts that share the idea of closed loops. Some of the most relevant concepts are cradle-to-cradle (McDonough & Braungart, 2010), laws of ecology (Commoner, 1971), looped and performance economy (Stahel, 2010), regenerative design (Lyle, 1994), industrial ecology (Graedel & Allenby, 1995), biomimicry (Benyus, 2002), and the blue economy (Pauli, 2010).

Wilts (2016) claims, that some concepts have actually arisen from the circular economy concept, so the causal effect is actually the other way around. This illustrates that there is a lot of ambiguity to the concept. The concept is very dynamic and emerging, and there are many different definitions and interpretations possible. The concept is complex and not clearly defined, besides not all aspects are widely agreed upon.

This study will not analyse the nuances of the circular economy in detail, as it would go beyond the scope of this study, therefore the theory is narrowed down to the aspects that are widely agreed upon. In this thesis, the definition of a circular economy by Kirchherr et al. (2017) is used. They acknowledge that the circular economy means many different things to different people. On the basis of an analysis of 114 different definitions, they came up with the following definition of the circular economy, which is also used in this study:

"A circular economy describes an economic system that is based on business models which replace the 'end-of-life' concept with reducing, alternatively reusing, recycling and recovering materials in production/distribution and consumption processes, thus operating at the micro level (products, companies, consumers), meso level (eco-industrial parks) and macro level (city, region, nation and beyond), with the aim to accomplish sustainable development, which implies creating environmental quality, economic prosperity and social equity, to the benefit of current and future generations."

- *Kirchherr et al. (2017)*

2.3 The waste hierarchy

The definition by Kirchherr et al. (2017) reflects the principles of reducing, reusing, recycling and recovering materials on micro, meso and macro level. These 'R' principles are common in literature to describe what should be done in practice to, for example, design out waste. Across literature and practice the number of Rs varies between three (3Rs) and ten (10Rs). These R-imperatives are also referred to as the R-ladder or ROs (retention options) (Kirchherr et al., 2017; Reike et al., 2018). 'R' stands for various terms starting with 're-', and for each 'R', the order in which they are mentioned reflects the preferred order of execution in practice. This way, different levels of circularity can be distinguished, the different Rs, ranked from highest to lowest option of circularity (Cramer, 2014). Though, for the 3R principle alone, the principles are associated with six different meanings, this reveals a high inconsistency in understanding and application of the concept (Reike et al., 2018). In one of the most comprehensive models, the 9Rs principle of Cramer (2014), the following Rs are used from high to low level of priority: refuse, reduce, re-use, repair, refurbish, remanufacture, re-purpose, recycle and recover. This illustrates how many levels you can add to the R principles.

In the 4R principle, Kirchherr et al. (2017) add recovering as the fourth 'R' to the 3R principle Ghisellini et al. (2016) use: reduce, reuse and recycle. This fourth 'R' concerns a (nuance) difference with recycling, where energy is regained/recovered from waste, which is not the case with recycling. Although the definition of Kirchherr et al. (2017) is used throughout this study, recovery is not discussed any further. The aim of reduction is to decline the number of used materials (e.g. raw materials). This can be achieved by making production more efficient and by consuming less. The aim of reusing is using products again for the same purpose they were originally designed for. Fewer resources and energy need to be used when reusing, compared to creating new products from raw materials. The aim of recycling is to create a product from

materials that are seen as waste. The waste materials can be used to produce the same product or in the production of other products. This way raw materials can be used several times.

2.4 'More than' approach…

The circular economy is predominantly associated with this recycle principle (Ghisellini et al., 2016). However, as explained by Stahel (2013), out of the three principles, recycling is the least preferred from the circular economy point of view. Recycling faces several problems, since in many cases it is not possible to recycle waste material into material of equal value or quality as before, hence downcycling (Hopewell et al., 2009). In contrast, if a product from recycled material is of higher value or quality than the original product, it is referred to as upcycling (Sandin & Peters, 2018). Though, clothing is often downcycled into industrial rags, low-grade blankets, insulation materials and upholstery (Schmidt, 2016). At some point it is even unreasonable to recycle, since the quality would be too low (Andersen, 2006). Furthermore, part of the waste is not recyclable in the first place due to technical reasons, thus only leaving the option to incinerate or directly dispose it (Wilts, 2016). In each of these cases, it is impossible to satisfy demand for new material, without supplementing recycled material with new resources, therefore reducing and reusing are preferred over recycling. Moreover, even theoretically it is impossible to circulate resources endlessly without losses, due to the entropy law (recycling takes extra energy and materials) (Wilts, 2016).This means that although the circular economy is built on the premise to generate no waste at all theoretically, this is not possible.

Moreover, the circular economy is often considered as only a more appropriate waste management approach (Ghisellini et al., 2016). This is a limited view which ignores that a circular economy requires a broader and much more comprehensive look at the design of radically alternative solutions, over the entire life cycle of any process (Ghisellini et al., 2016). The circular economy covers a broader field than just waste management measures and are operationalized at different scales (micro-, meso- and macro- level) (Ghisellini et al., 2016; Kirchherr et al., 2017). Ideally, this should be done in a complementing manner, but reality is unruly, most initiatives, despite often being promising, remain fragmented and measures across scales are often not well aligned (World Economic Forum, 2016). Good coordination and collaboration between actors of various circular economy measures is essential to overcome this. An important condition for good collaboration to align various measures is acknowledging the importance of actors outside the waste management and ultimately involving them in the circle of actors. Actors from the industry are particularly important to include, because their product design strongly influences whether a waste product can be reused or recycled (Silva et al., 2017). A greater consideration of consumers' influence on the circular economy measures should be taken into account as well. Consumers determine whether to buy a product that can be reused or recycled or not, and whether and how well waste is separated. Waste separation also plays a crucial role in how well reusable or recyclable products are, and whether it is possible at all (Wilts, 2016). A well-executed circular economy benefits from collaborating with multiple actors within and outside the waste management.

2.5 The polluter pay principle

One of the industry actors that must be involved in making the chain more circular is the producer of the products. In the past, governments and policy makers of mainly developed

countries have attempted to direct the growing material waste streams back into industry through recycling programs in order to close the material loop. One of the ideas is to push legislation towards waste reduction and recycling programs such as 'extended producer responsibility' (Lieder & Rashid, 2016). The Ecocycle Commission has looked into the usefulness of introducing Extended Producers Responsibility for a number of additional products, including textiles (Swedish Environmental Protection Agency, 1996), however extended producer responsibility does not yet apply to (used) textiles. The extended producers responsibility was firstly proposed in Germany's legislation on packaging in 1992. It is a modern version of the polluter pay principle, an economic tool that aims to enhance the circularity of products and materials acting on the producers' side (Ghisellini, 2016). This principle states that the costs of disposal and recovery must be the responsibility of the producers who will therefore have a strong incentive to reuse, recycle or dispose of waste materials. Moreover, Connet et al. (2011) argues that if a product cannot be reused, recycled or composted, consumers should not buy it. Preferably, the industry should not produce such disposable products. The latter highlights the need for a shared responsibility among all actors, including consumers, to achieve more ambitious results in terms of collection of waste to be reused or recycled. Unlike European systems, the Japanese system has an enforced consumer responsibility for returning products for recycling (Ghisellini, 2016).

2.6 Social Inclusiveness

Apart from the environmental and ecological advantages which can be more or less brought about by the reuse and recycling of textiles, there are many benefits from a socio-economic perspective of moving towards a circular economy (Filho et al., 2019). The European Commission's policy document on the circular economy (2015) predicts among other things, social integration and cohesion. The socio-economic benefits have been widely projected, however the evidence base to support them is scarce (Filho et al., 2019). Most of today's social advantages of the circular economy (i.e. textile reuse and recycling) are related to charity activities. In multiple countries, charities collect and resell textile waste and resell it through their shops, and surplus stocks are sold to recycling firms (Kim & Kim, 2016). The recycling firms compensate the associated charity based on the weight of the collected clothes (Bianchi & Birtwistle, 2010). The earnings are closely linked to internal and external activities and projects to help people and communities where caregivers and supporters are needed (Kim & Kim, 2016). Furthermore, the circular economy can create employment in every phase of the life cycle of textile waste recycling (i.e. collection, sorting transport and recycling) and create jobs and opportunities for small and medium-sized businesses (Cuc & Vidovic, 2011; Ellen MacArthur Foundation, 2017; Wijkman & Skånberg, 2016; Zamani, 2014). The circular economy could become a solution that helps enterprises in the process of moving towards sustainable business performance (Filho et al., 2019).

It seems increasing apparent that business as usual is not an option for a sustainable future. Business model innovation is increasingly seen as a key to delivering greater social and environmental benefits (Bocken et al., 2014). Since the early 2000's there has been increasing interest in the use of Social Return on Investment (SROI) as a measure for assessing the performance of social enterprises.

The definition of Brewer (2012) of a social enterprise clearly distinguishes between different types of enterprises such as charity, non-profit organization etc. However, it is very nuanced

when a company can or cannot be called a social enterprise. A precise indication of what type of company it is or is not goes beyond what this study aims to explain, therefore a broader scope of 'sustainability-focused organizations' will be referred to as 'social enterprise' (McNeill et al., 2017). Furthermore, the focus will be on the social dimension of social enterprises.

SROI is a metric that compares the monetized social costs of a program with the monetized social benefits of achieving a result (or set of results). A hypothetical case makes clear what this means in practice: in a drug treatment program, the question would be whether the added social value from reduced addiction exceeded the social costs in the form of the scarce resources used to provide treatment. If social benefits exceed social costs, it would indicate that the outcome of the treatment program was valued more highly than the costs of achieving the outcome (Cordes, 2017). This could be interpreted as an indicator for this hypothetical program having an explicit aim to benefit the community, which is a characteristic of the social dimension of social enterprises in general. Other social goals and/or means are for example: the re-integration of poorly qualified people or persons with special needs and other social problems, into society by providing temporary jobs with on the job training and social support, the re-integration of long-term jobless persons into the mainstream labour market, qualifying them in order to foster integration process, help the target group cope with everyday life challenges, support them in changing their live for the better and, limited profit distribution reflecting the primacy of social aim (Anastasiadis, 2013; Defourny & Nyssens, 2014)

The main criteria of the social dimension of a *social enterprise* is characterised by two major elements. A goal: occupational and social integration of handicapped or marginalised people. And a means: productive activity with guidance or training, with the view or achieving a lasting interaction, be it within the social enterprise or within a traditional enterprise.

2.7 Conceptual framework

The conceptual model (Figure 1) integrates and visualizes the most important concepts that have been discussed in the previous sections.

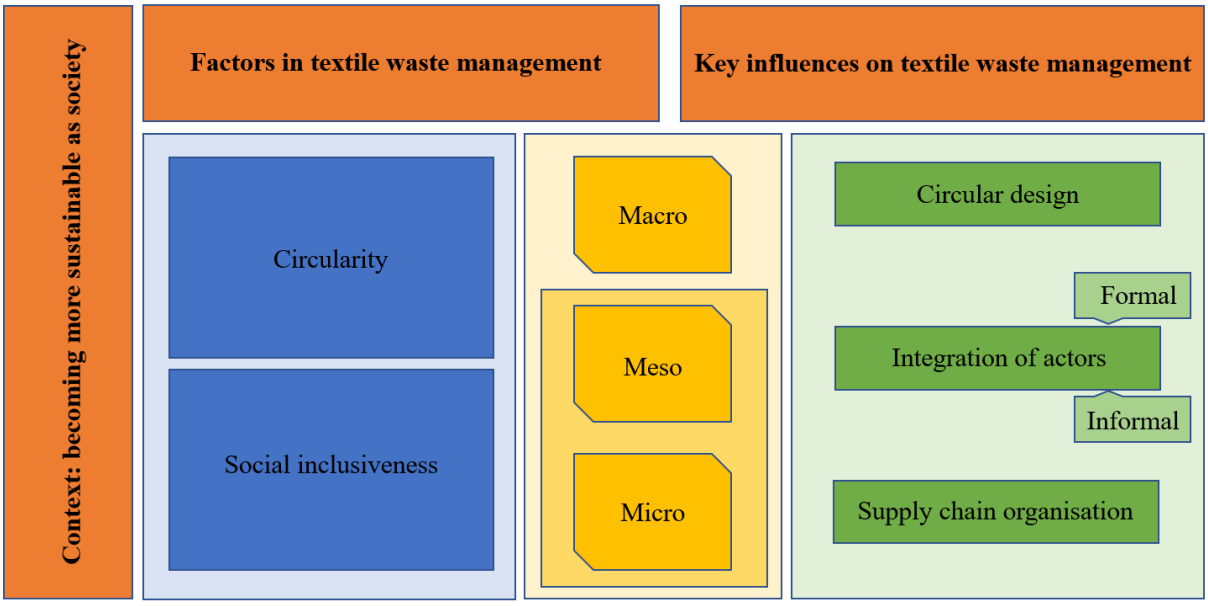

Figure 1: conceptual model of influences on textile waste management

The point of departure of this conceptual model is the broad context this study lies within: becoming more sustainable as a world. In chapter 1 it becomes clear that textile waste management in the Netherlands does not contribute to making the world more sustainable. For a long time, it was not recognized that textile waste was an environmental problem. Meanwhile, a turnaround seems to have been made, we are at the beginning of a change. In the waste management of Dutch municipalities there is often a desire to be both circular and social inclusive.

It is expected that circularity and social inclusiveness in textile waste management are dependent on key influences in on macro, meso and micro scale. These scales reach from the individual level to the world level. The micro and meso scales are within reach of the Dutch borders. The Macro scale encompasses everything beyond this.

Circularity is seen as factor to strive for. Circularity is influenced by a circular design. In practice, a circular design is based on the waste hierarchy in which the 'R' principles play a role: reduce, reuse, recycle and recover. The extent to which this is applied determines how circular the textile waste management is. Circular design on microlevel can be implemented by e.g. companies or municipalities. On meso level, regions like provinces or countries can implement circular solutions. And on macro scale, the entire world is involved.

Circularity also depends on the integration of actors. For example, how are municipalities and waste companies connected? Also, is there good coordination and collaboration with actors outside the waste sector? This can be actors on all three scales. This integration of actors can be established formally or informally. If there is formal integration, the goals that are pursued and the mutual expectations that exist are laid down in a contract or equivalent. In an informal integration, actors make mutual agreements about goals and expectations, without this being laid down in a contract. If the integration of actors is good, be it formal or informal, it is expected to be an enabler of circularity. However, it is challenging to measure the extent of integration of actors. In this research, the emphasis is on the integration of actors on a micro and meso scale.

The third key influence on circularity is the organization of the supply chain. What the supply chain looks like largely determines how circular the textile waste management is. If it is not possible to find out what the supply chain looks like, and there is no transparency and traceability, this can act as a barrier to circularity and vice versa. In this research, the emphasis is on the part of the supply chain that lies in the micro and meso scale. However, it is inevitable to look beyond the Dutch borders in textile waste management.

Social inclusiveness in the textile waste management is also seen as a factor to pursue. Social inclusiveness is concretely seen as involving people with a distance to the labour market in textile waste management. Although circularity and social inclusiveness in themselves have nothing to do with each other, hence the separate representation of each other, they are both positioned within textile waste management. Therefore, it is argued (by the researcher) that social inclusiveness is affected by the same key influences as circularity. However, social inclusiveness, in the sense of deploying people with a distance to the labour market, is only visible on a micro and meso scale.

Based on the theory described in chapter 2 and the derived conceptual model, the following expectations for possibilities of circularity and social inclusiveness can be expected for the two case studies:

It is expected that circularity is treated as a solution to waste generation, with a focus on the two ‘R’s reuse and recycle, rather than a complete circular system. A complete circular system-would require a more comprehensive look at the design of radically alternative solutions, over the entire life cycle of a piece of textile. Actors outside of the textile waste management are expected to be hardly involved, which makes cross-fertilization from other sectors difficult. Ideas and solutions to problems used in other waste streams might be overlooked preventing innovation and circular solutions to be implemented. It is also expected that the municipalities do not know where their post-consumer textile ends up, likely transparency in the process is not their main concern.

Albeit on a lower scale, the same key influences that might affect circularity are expected to affect social inclusiveness. A different interpretation of a circular design, integration of actors and the organization of the supply chain could potentially offer room to people with a distance to the labour market. Though, the degree of social inclusiveness is expected to be difficult to measure. It is expected that social inclusiveness in textile waste management will be more present in municipalities that outsource waste management to social enterprises. Social returns will be paramount at these enterprises. Deploying people with a distance to the labour market could possibly be a good thing, however, unfounded positive prejudices might obscure a critical view. Feelings and perception of actors are expected to play an important role for social inclusiveness.

3. Methodology

This chapter discusses which methodological choices have been made and what consequences these choices entailed. It also explains how the data has been analysed and how this has been designed to collate the information necessary to answer the research questions. Challenges, limitations and ethical questions that arose are discussed as well as ethical issues and how they were dealt with.

3.1 Research design and research method

In order to carry out this research, an intensive explorative research design is chosen. A multiple case study is conducted, where the emphasis is on describing two qualitative cases with the maximum amount of detail. This research design is concerned with the relationship between individual observations drawn from two cases and the ability to make (naturalistic) generalizations on the basis of these observations (Hammersley et al., 2000). These two cases are the Dutch municipalities of Groningen and Leeuwarden. In Clifford et al. (2016) a case study is described as an appropriate way to collect detailed, specific information. With this information, structures and relationships can be demonstrated, by which models can be generated or changed. The disadvantage of a case study is that results are not always generalizable. This conflicts what has just been said before, therefore, a distinction is made between naturalistic generalizations and objective scientific generalizations. Naturalistic generalizations are insights gained by reflecting on details and descriptions presented in case studies, whereas objective scientific generalization involves a transfer of knowledge from a study sample to another population (Mills, 2009). Moreover, the advantage of multiple cases is that they create a more convincing theory, because there is empirical evidence from more than one case (Eisenhardt & Graebner, 2007).

This multiple case study includes two research methods to answer the research questions. The questions are answered on the basis of qualitative data, partly based on policy documents and partly generated from semi-structured interviews. The policy documents used form the basis of the formal policy applied by the various levels of governments, such as municipality, province, the national government and the European Union. The policy documents of the municipality of Groningen and Leeuwarden provide insight into what the textile waste management of the two municipalities entails and provides background to the cases. The qualitative method interviewing is chosen to explore subjective meanings, values and emotions.

3.2 Data collection

The policy documents were chosen because they were deemed relevant by the researcher, since they were provided by interviewees or because they were mentioned in literature. The main policy documents used are summarised in table 1, all policy documents are included in the references. The names of the documents and organisations in table 1 have been translated to English, if applicable. A WOB request (freedom of information) has been submitted to obtain information from the municipalities Groningen and Leeuwarden about agreements concluded between different parties. Collection permits and decision documents retrieved from the WOB requests are not included in table 1, nor in the references due to privacy sensitivity, but they are part of the main policy documents. The policy documents form a framework to put next to the information retrieved from the interviews. Institutionalized policies can have a completely

different effect in practice than in theory, institutionalised laws, agreements and goals are not always enforced. The formal policy has been compared to the responses of the interviewees in order to achieve better results and interpretation of the results.

Table 1: Main policy documents

Author	**Title**	**Year**
European Commission	Closing the loop: An EU action plan for the circular economy.	2015
National Government	Circular textile.	2019
National Government	Policy program circular textile 2020-2025.	2020
Municipality of Groningen	Waste management plan 2016-2020.	2015
Province of Friesland	Administrative Agreement 2019-2023. Happiness on 1.	2019

The participants for the semi-structured interviews were selected with a non-random approach, on the basis of their characteristics relevant to this research, namely their employer and their position within the organization. An extremely large number of articles and books recommend guidance and suggest anywhere from 5 to 50 participants as adequate (see for more information Dworkin, 2012). Most scholars argue that saturation is the most important concept to think about when mulling over sample size decisions in qualitative research. Saturation is reached when no new or relevant data is found anymore or when no new theoretical insights can be found (Gubrium et al., 2012). In a qualitative case study research with two cases, even a few in-depth interviews can be insightful. These types of interviews have the aim of garnering in-depth understanding of a phenomenon or are focused on meaning (and heterogeneities in meaning). In-depth interviews are often centred on the how and why of a particular issue, process, or situation; generalizations are not the main focus of interest (Dworkin, 2012). Whilst the focus of this research is not to generalize, some generalizations will be made, supported by experiences of interviewees outside the case study areas. For this study, seven participants have been selected, by which all major actors in the field of textile waste management in the municipality of Groningen and Leeuwarden are covered. Although these participants were selected with precaution, this selection method may lead to a selection bias.

The participants have been recruited by the researcher by phone or email and indicated that they wanted to participate in the study. Because the background of the participants is important for the interpretation of the results, table 2 contains an overview of the participants position within the organization they work for. There is a system in the interviewed participants; several parties along the (domestic part of) the supply chain were interviewed. A representative of the municipality of Groningen, responsible for textile waste, was interviewed. It turned out to be difficult to interview a representative of the municipality of Leeuwarden. In the end, a trainee of the municipality of Leeuwarden was interviewed, however his know-how was limited. Secondly, the party to which the textile waste sorting and processing was outsourced by the municipality was interviewed: Omrin (affiliated with the municipality of Leeuwarden) and Goudgoed (affiliated with the municipality of Groningen). Thirdly, Reshare was interviewed, a clothing collector which operates throughout the Netherlands and with ties abroad. In addition, two consultants in the field of (circular) textile waste policy were interviewed (a researcher from CPB and the president of ‘Werkgroep Circulair Textiel’).

Table 2: Participants interviews

Respondent	Position	Employer	Interview date
R1	Program Manager Waste	Municipality of Groningen	25-03-2020
R2	Account Manager Partial Flows	Omrin (Waste Management Company)	02-04-2020
R3	Scientific Collaborator	CPB	25-05-2020
R4	Operational Director	Reshare/Salvation Army	26-05-2020
R5	Manager Thrift Shop	Goudgoed/WerkPro Groningen	27-05-2020
R6	President & Program Manager	Werkgroep Circulair Textiel & Cirkelwaarde	12-06-2020
R7	Trainee Waste and Circular economy	Municipality of Leeuwarden	22-07-2020

The interviews were conducted over a period of approximately four months. Due to the fact that this research was conducted during the COVID-19 pandemic, five of these interviews were conducted by phone or equivalent, one interview was held by email, and only one interview was conducted onsite. For legal reasons but mainly as an ethical doctrine, at the start of the interview communication took place between the interviewer and the interviewee regarding informed consent. All participants (if applicable) gave permission for a sound recording of the interview (verbally). This allowed the interviews to be transcribed in order to remain close to the data. The interviewees were also informed that they could stop the interview at any time. Furthermore, it was agreed upon that their position within the organization they work for would be mentioned due to the nature of the research in which context plays an important role. Finally, it has been communicated to the interviewees that the interviews would only be used for the purpose of this study (Appendix A). The interviews lasted between 45 and 90 minutes.

A semi-structured interview guide was used for the interviews. This interview guide has been adapted depending on the respondent's employer and position within the organization. A (general) topic list can be found in appendix A. The informal structure of the interviews permitted the researcher to further explore the interviewee's perception on issues that were not included as questions in the interview guide. This resulted in slightly different interviews, nevertheless, the interview guide functioned as an instrument to ensure consistency in the content and topics covered, which made the comparability of the collected data possible.

A frequently mentioned concern about qualitative research is how to establish reliability and validity which is often discussed in qualitative research (Creswell, 2020). In qualitative research, one speaks in terms of transparency (another investigator can check what has been done), communicability (the categories make sense to other investigators) and coherence (logical or consistent and something that makes sense as a whole) (Silverstein et al., 2006). The transparency and transferability in this study are guaranteed by carefully describing the analysis process (Chapter 3.3). In addition, a codebook/overview of the main codes and subcodes has been made (Appendix B), to be transparent about the outcomes of the open and axial coding process (an explanation can be found in Chapter 3.3). The coherence of the research is

guaranteed because the theory cited in the theoretical framework fits the research questions and the analysis.

3.3 Data analysis

The data from the interviews has been analysed by the means of a qualitative content analysis. This form of analysis is very suitable for research in which the meaning of data must be sought by means of interpretation. It can be applied to different types of qualitative data, such as interviews (Schreier, 2012). After (partly) anonymizing and literally transcribing the six interviews (in Dutch), the transcripts were categorized and coded, which is common practice in qualitative content analysis (Coleman & Ringrose, 2013). One interview was conducted by email, so the results were already written down and only needed to be coded. English codes have been assigned to the Dutch transcripts. While some of the meaning may be lost, translations have been made with great effort and accuracy to stay as close to the original meaning as possible. In this way, codes that emerged from the interviews are understandable for a broader audience. In the results section, parts of the interviews are paraphrased, quoting is not possible, because a literal translation is sometimes not readable. Attempts have been made to remain as close to the original as possible.

The coding process was hybrid in nature, because it was both deductive (concept-driven) and inductive (data-driven) (Graneheim et al., 2017). In the deductive approach, codes follow from the interview guide, in the inductive approach, codes follow from the raw data. After this preliminary organization and planning phase, as indicated by Richards and Hemphill (2018), the 6 interviews are open coded with the help of the program ATLAS.ti (version 8). During the open coding process, appropriate subcodes have been assigned to the established categories. Decision rules are often used to determine in which category a certain subcode falls. It has been decided not to use decision rules, although they are customary used. They can be useful to ensure transparency in the coding process, however they are often used wrongly. Too many decision rules make the coding frame unwieldy, and if subcategories do not overlap conceptually, they are not needed (Schreier, 2012). All transcripts are coded until no new subcodes are found. After the open coding, axial coding took place, in which the subcodes per category were compared and reduced by concatenating overlapping subcodes. Based on their similarities, main codes are developed.

These phases are supported by a strategy to increase the credibility and enhance trustworthiness of the research, namely by peer debriefing. Peer debriefing means that a researcher who is familiar with the project, but not involved in the data analysis, enters into conversation with another researcher to critically discuss the research method, the data analysis and the interpretation (Hadi & Closs, 2016; Lincoln & Guba, 1985). Hadi and Closs (2016) indicated that in the case of graduation research, the student's supervisor may act as a peer debriefer. The peer debriefing took place in June, during which the researcher and the peer took a critical look at the first interviews analysed by the researcher. Due to the fact that this research was conducted during the COVID-19 pandemic, the peer debriefing took place via email. No suggestions for adjustments were made during the peer debriefing which led to the development of a preliminary codebook. Hereafter, all other transcripts are also coded in the manner described above.

An overview of the main codes and subcodes which arose from the open and axial coding can be found in the finalised codebook/overview appendix B. Based on the codebook/overview in appendix B, a code tree has been created, represented in figure 2. Comparisons and interpretations have been made on the basis of the ordered main and subcodes in order to obtain (implicit) answers for each sub-question in the results section and an answer on the central research question in the conclusion.

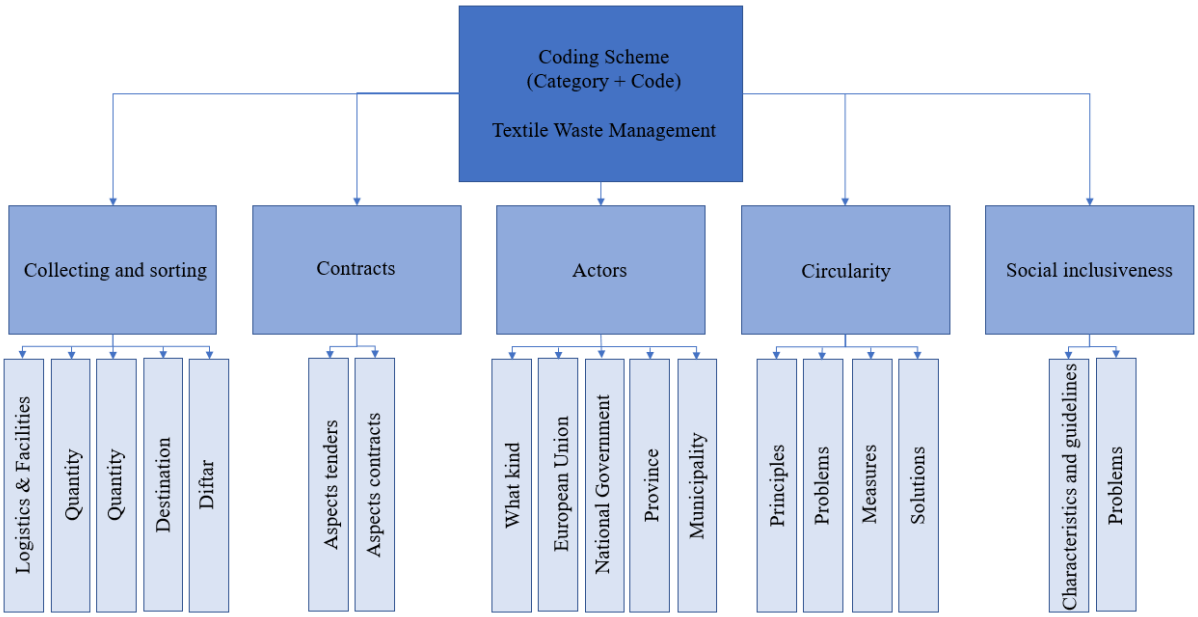

Figure 2: Coding Scheme (Category + Code)

4. Empirical analysis and Results

This chapter presents the most important results from the interviews and policy documents (e.g. WOB request). This chapter is divided into a number of sections. These sections broadly focus on the topics of the interview guide, and form the guideline for the chapter, rather than following the sub question structure as proposed in chapter 1. A more narrative way of writing down the results has been chosen, based on the ordered main and subcodes, in order to obtain (implicit) answers for each sub-question in the result section. Cited paraphrases of the participants are referred to as 'R1' to 'R7', shown in table 1. First, a description is given why these cases were investigated.

4.1 General background cases

A multiple case study with two cases was chosen to gain insight into and to be able to make a comparison between different situations. The selected cases are the municipality of Groningen and the municipality of Leeuwarden. Both municipalities are located in the north of the Netherlands, in the province of Groningen and Friesland, respectively. The municipality of Groningen has approximately 232922 inhabitants and the municipality of Leeuwarden 124058 (CBS, 2020a). Both municipalities are urban, which makes them suitable for this study because of multiple reasons. Firstly, according to the Ellen MacArthur Foundation (2015), urban areas have, compared to rural areas, better characteristics to implement the circular economy. Partly this has to do with the degree of urbanisation. The municipality of Groningen is considered to be 'extremely urbanized' with an average of 3219 addresses per square kilometre, whereas the municipality of Leeuwarden, with 1041 addresses per square kilometre, is 'moderately urbanized' (CBS, 2020b). Although they are different in density, they both have relatively high density of consumers and firms and there are a lot of resources and the textile waste flows are relatively large. Due to this, urban municipalities have a relatively large budget compared to rural municipalities and firms work on a relatively large scale.

The municipality of Groningen clearly expresses their ambition to implement the circular economy in their policies. The municipality of Groningen is following the national government's ambition to move towards a circular economy in which waste, a valuable source of raw materials, is reused as much as possible. Currently 52% of their household waste is recycled, with this they have reached their goal for 2015. Their goal for 2025 is to be waste free, which is a very progressive goal. School children are taught about the production, prevention and reuse of waste, companies and research institutions are challenged to think about how to better reuse waste. Their goal is not only a clean and sustainable city, but (textile) waste must also generate money and regional jobs (for people with a distance to the labour market) (Gemeente Groningen, 2015).

In the municipality the Leeuwarden, this ambition is not so clearly expressed. However, the municipality has signed the national raw materials agreement, in which the wish is expressed, to be circular in 2050 (Grondstoffenakkoord, 2017). They also want to meet the 'VANG' goal, which is to reduce the residual waste to a maximum of 100 kilogram per person per year (VANG, 2016). From this goal an implicit goal of reducing the share of textiles in the residual waste can be deduced. Because of their similarities, and despite or perhaps because of these differences, these two municipalities form interesting cases.

4.2 Contracts and tenders

The interviews revealed that matters regarding the contracts were sensitive and / or confidential, not much was revealed about this during the interviews. For this reason, it was decided to submit a WOB request to the municipality of Groningen and Leeuwarden to gain insight into the contracts. This turned out to be a lengthy process. The municipality of Groningen complied with this request within the first four weeks, and a large proportion of information was sent within eight weeks. The Leeuwarden municipality initially did not reply within the first four weeks, after many phone calls and e-mails, even after the eight-week term, it turned out that there were no formal agreements.

The municipality of Groningen has been merged with the municipality of Ten Boer and Haren on January 1st, 2019. With regard to textile waste policy, this means that the municipality must harmonize its policy with two other municipalities. To date, the collection of textiles has been arranged by this former municipalities in its own – albeit comparable – way. Until now, the old municipalities of Groningen, Haren and Ten Boer have always opted to work with collection permits and not for tendering procedures.

The former municipality of Groningen started a collaboration project in 2001 with local thrift companies for the collection and sorting of textiles. The reason was a volatile textile market with strongly fluctuating prices. The often smaller textile collectors active within the municipality were at the mercy of larger, national customers. The Goudgoed project was set up in collaboration with local thrift companies to provide more structure and improve the textile collection in the municipality. Goudgoed is a local thrift store in the municipality of Groningen. An additional objective was to create local / regional employment for people with a distance to the labour market. Hence, Goedgoed became part of the Werkpro foundation. Werkpro offers work and guidance for people with a distance to the labour market. A collection permit has been issued to Werkpro-Goudgoed (hereinafter: Goudgoed) for the emptying of textile containers placed by the municipality in public space and for frequent door-to-door collection (10 collection rounds per year). Goudgoed retains the proceeds from the collected textiles in exchange for their collection efforts. Goudgoed sorts the collected textiles locally and supplies thrift companies with marketable textiles and takes care of the further sale of remaining textiles.

In 2012, the former municipality of Haren issued a collection to Sympany for the period 2013 to 2018. This permit was tacitly renewed in 2019 for another five years. The permit only applies to collection using textile containers in public spaces, not to door-to-door collection. Sympany retains 80% the proceeds from the collected textiles. In the context of harmonization, Goudgoed has been doing door-to-door collection in Haren since 2020. Periodic home collection of textiles did not take place in Haren before 2020.

Ten Boer used a method whereby a collection permit was issued annually for collection at home on the basis of rotation of up to six parties. As of 2019, no other party then Goudgoed has a collection permit for collection using textile containers and door-to-door collection.

The permits granted by the municipality of Groningen (and former municipality of Haren) to Goudgoed and Sympany are subject to general conditions, these largely overlap. These conditions include general matters such as: the duration of the permit, how and when it can be terminated; when the containers are emptied and how often door to door collection takes place; what the costs are for the use of the containers (these are the property of the municipality); when

information is given of the quantity of textiles collected; that the collection (and transport) should not cause pollution and nuisance to the public order; that the municipality is not liable for any damage.

In the permit of Goudgoed it is stated that the collection takes place for the purpose of realizing reuse, this is not explicitly stated in the permit of Sympany. The municipality of Groningen has formally agreed that Goudgoed is the primary collector of disposed textiles and requests from other parties to get a collection permit will be rejected. A few other matters are included that are not relevant for this study. Conversations with respondents show that, at present, there is little to change in tenders and contracts / permits of municipalities, often the choice is: take it or leave it. Expectations for circularity and social inclusiveness have been expressed in terms of conditions that must be met. These expectations are reflected in the interviews, the policy documents do not reflect hard conditions. Examples of conditions that are agreed upon are: Goudgoed has to collect and sort with people with a distance to the labour market; Goudgoed has to sort and sell its textile at the highest possible level (according to the 'R' principles); Goudgoed has a target to produce 5% less waste each year (not just textile waste); Werkpro has to generate a certain amount of jobs for people with a distance to the labour market each year.

In the municipality of Leeuwarden, Omrin is responsible for collecting textile waste. Omrin is a waste collector and processor in the province Friesland. The textile that is collected in the municipality of Leeuwarden goes directly to the textile sorting centre in Sneek. This sorting centre was a joint initiative of Empatec, Caparis, Omrin Estafette and Salvation Army-Reshare, which opened in 2013. The municipality of Leeuwarden did not use a tender procedure to come to an agreement with Omrin. Neither is there a written agreement between Omrin and the municipality of Leeuwarden for the collection and processing of textiles. This is because there is a quasi-in-house exception, also known as quasi-contracting. The collection and processing of the textile is entrusted to Omrin, an independent legal entity affiliated with the municipality, which assignment when applying the procurement rules may be equated with an internal assignment to a legally distinct service within the legal entity of the contracting authority. No expectations have been expressed in terms of conditions that must be met. However, the municipality is shareholder of Omrin, therefore Omrin must pay dividends to them.

4.3 Collection

The municipality of Leeuwarden uses large underground containers that are emptied mechanically. The municipality of Groningen uses small(er) above-ground containers that are emptied by hand. In addition, the municipality of Groningen offers a door-to-door service 10 times a year, whereby textiles are picked up at home. Although, this is not cost efficient, it is still being done. It is very customer-friendly and it contributes to a relatively high collection response, also it is very labour-intensive. The loss made from door-to-door collection is offset by the proceeds from collection of collection points. The paraphrase below illustrates that door-to-door collection is not profitable from a purely financial point of view, should be stopped.

R5: 'If I drive around with those buses, with those people in them, and of course those things also cost money, and I trace it back that to the number of kilos that I collect, I should actually say, I quit, or I will do it for the show once a year.'

Moreover, in both municipalities, textile can be handed in in various second-hand shops. Both municipalities and their executive parties experience problems while collecting textiles and recognize that there are problems with their facilities.

The first and a major problem that both municipalities face is the pollution of textiles. Pollution can have various causes. Sometimes residual waste is thrown into the textile containers, which contaminates the entire container. This problem is bigger for large underground containers. These containers are emptied less often, which increases the chance residual waste is thrown into them. The underground textile containers also look similar to the containers in which residual waste must be disposed, this makes it easier to put residual waste (unintentionally) in the wrong bin. However, household waste is also deliberately placed in the textile container. For example, if a residual waste container is full, and the textile container is right next to it. There are also differences in pollution per neighbourhood. In some neighbourhoods relatively clean textiles are collected, while in the other the waste is polluted more often. A large student population, as in Groningen, is also seen as a problem, they are assumed not to be so concerned with waste separation. Laziness and indifference among consumers are mainly seen as causes of the pollution. What is also being discussed in in the interviews is a discrepancy between values and actions. For example, in a survey someone indicates that he or she finds waste separation important, but does not separate his or her own waste. In addition to the fact that waste ends up in the textile, a lot of textile also ends up in the residual waste bin, which is also not desirable, because the goal is to collect as much textile as possible.

R3: 'Yes I think yes it is a kind of laziness, and people think, now I'm standing here with my bag, I want to get rid of it, but it would help if those things were not all next to each other.'

In addition, in Leeuwarden the underground containers are mechanically emptied. This is done in a rather coarse way, with a crane truck that dispatches the textile container above a truck. There is a high chance that the bags burst open during this process. If there is residual waste in a bag and it bursts open, it will contaminate the textile from other cracked or improperly sealed bags. Also, the trucks in which the textile is transported are sometimes not clean, other waste is transported in the same truck. In the municipality of Groningen, the containers are emptied by hand and residual waste is taken out of the container by hand. This is labour-intensive; however, it makes for cleaner textiles and as such, less waste.

In addition to soiled textiles, wet textiles are also no longer usable. This can happen during textile retrieval, when it rains. More often, the containers themselves get wet inside. This usually happens with underground containers that are leaking. This could be because the textile container is of poor quality or due to poor maintenance of the container.

Although there is more pollution in underground containers than in above-ground containers, municipalities do not want to return to above-ground containers for aesthetic reasons, it would negatively affect the cityscape. Besides there are higher costs involved for the collecting party, it is more labour-intensive, the containers have to be emptied more often. Municipalities with above-ground containers prefer not to switch to underground containers if nothing changes.

R5: 'So I want to go underground, but then it will be underground on a small scale. So then I want small bins, which I can empty every week, to still somehow achieve my quality. Anyway, the fact that you do it underground already affects that quality.'

Solutions are already being sought to the problems, to improve the quality of the textiles collected. Good information and communication should be provided to the consumer about: what to separate; where to separate; why to separate; and what happens to the textile. There is also a need to keep monitoring what the amount of separation is.

Another respondent feels that a lot is demanded from consumers with regard to waste separation. This respondent says suggests collecting all waste together that is easy to post-separate like residual waste, plastic and glass. Textiles, organic waste and paper, are then the only materials that need to be source-separated. Paper and textiles should absolutely not get wet and dirty, organic waste may get wet and dirty, but residual waste cannot be mixed with this stream, since it is hard to post-separate.

R3: 'So that that might be an advantage of post-separation, that you can focus on the flows that really need to be separated, such as textiles.'

At the same time good service is mentioned as a solution: emptying the containers on time; offering enough containers; placing textiles containers and residual waste bins at a further distance from each other. It is also already being investigated whether innovative textile containers can be designed. Until now, they have been considered futuristic and not cost-efficient.

Also, a retour premium is being mentioned, a deposit on clothing. The form in which this could be done, is not clear yet. It is expected that the amount of collected textile will rise. Another possible solution to the problem, related to a retour premium, is to use diftar. However, opinions are strongly divided on this. Diftar is discussed in the next section 4.4.

4.4 Diftar

In the former municipality of Haren, diftar is used (differentiated tariffs: the waste tax for households depends on the amount of residual waste they offer), in which the polluter pays. In Ten Boer and Groningen a fixed waste tax per year is payed, based on the size of the household. On 1 January 2021, one system must be used throughout the merged municipality, but no decision has yet been taken. Whichever variant is chosen, additional facilities in neighbourhoods will be implemented (e.g. textile containers). Municipal residents of Leeuwarden pay a fixed waste tax per year, based on the size of the household. Table 2 provides an overview of the systems used in the (parts of the) municipalities.

Table 2: Waste taxes, tariff systems and collectors in the (parts of the) municipalities of Groningen and Leeuwarden

Municipality	**Average rate per household (€/Year)**	**Multi-person household rate (€/Year)**	**Single household rate (€/Year)**	**Coverage rate***	**Tariff system ***	**Collector / Organization**
Groningen/ Groningen	294	333	236	100%	2	Municipal service (Gemeentelijke dienst)
Groningen/ Haren	174	191	144	100%	8	Groningen

Groningen/ Ten Boer	270	279	248	100%	3	Groningen
Leeuwarden	253	293	195	93%	2	Omrin - government company (Overheids-venootschap)

Coverage rate*: The rate of coverage of waste management costs with the revenues from the waste tax. Used tariff systems* (Rijkswaterstaat, 2019): 0 No cleaning levy; 1 Fixed rate; 2 Number of people; 3 Volume; 4 Volume & frequency; 5 Expensive bag; 6 Expensive bag & number of people; 7 Expensive bag & emptying; 8 Weight; 9 Weight & frequency; 10 Weight, frequency & number of people; 11 Volume, frequency & number of persons

The idea of the system is that it offers a price incentive to reduce residual waste and separate waste. However, the system has fierce supporters and opponents. The advantages and disadvantages of diftar which are elaborated in policy documents are largely echoed by the respondents. Both proponents and opponents have their say.

Some respondents mainly expect a positive impact, because people are more aware of their waste through a price incentive. It is said that in any case it is expected that textile will be thrown less with the residual waste, because then you have to pay more.

I: how can pollution be reduced? R7: '... possibly a financial incentive to put textiles in the right container (diftar).'

Though, the other respondents are more cautious, seeing mainly the danger of residual waste that is thrown into the textile container, to an increased extent.

R4: ''Yes, it has a negative effect on that, if I have to pay for it or I can throw it in another container''

Although the numbers that exist are not reliable, it seems to be the case that there is more pollution of textile containers in cities, which often do not use diftar, compared to rural areas, where much more often diftar has been implemented. Although, there is no conclusive evidence, perhaps pollution and diftar are unrelated.

R3: ''I do not think that textile pollution has much to do with diftar.''

Diftar is said to be difficult to implement in cities with its many high-rise buildings and small houses without a garden. There would be a lack of space to implement it, but it cannot be ruled out that it may not be possible. One respondent indicates that it would be a nice experiment to implement it in a (high) urban are and see what the consequences are. This respondent indicates that conclusions are drawn on the basis of numbers that are not reliable (they are based on estimates), so it would be nice if the impact it had was carefully investigated.

4.5 Sorting

Once the textile has been removed from the containers in the municipality of Groningen, it is brought to thrift store Goudgoed. In the municipality of Leeuwarden, Omrin bring their textiles to the joint sorting centre with Reshare, Empatec and Comparis in Sneek. In these two places, the textiles are sorted by hand in a similar way. First, waste is removed from the textile stream.

Afterwards, the textile is sorted into different flows. One stream consists of good, fashionable, reusable clothing. This reusable textile is then sorted by type: ‘ladies’, ‘men’, ‘shoes’, ‘vintage’, ‘summer’, ‘winter’ etc ... In addition, there is a stream of clothing that is of good quality, but which is no longer fashionable. There is also a stream that is no longer usable in its current form, but which can still be recycled in another form. This stream is divided into mono streams of the same fibre type (i.e. cotton, polycotton, wool, etc…) and is sorted by colour. Lastly, there is a stream of textiles that are no longer usable and cannot be used in another form, this is seen as waste.

The sorting process of both municipalities is done on a regional scale. Both Omrin and Goudgoed collect textiles from several municipalities, which increases their flow of textile. In order for the textile stream to be of good quality, it should be sorted in different flows as much as possible (e.g. red cotton or ladies summer t-shirts). If only a small number of textiles is collected, these flows become so small that you can no longer use them, it is not profitable. There is a threshold of the amount of waste in order for it to be sorted as a separate stream. Both Omrin and Goudgoed monitor how much textile they have and sorted, and how large the different flows are. They write a report on this every year.

There are several problems that are encountered when sorting textiles. First of all, textiles have to be sorted by hand, which is labour-intensive. Wieland Textiles in Wormerveer (North-Holland) is the only company in the Netherlands that is experimenting with mechanical sorting by means of ‘The Fibersort'. The Fibersort is a technology that automatically sorts large volumes of mixed textiles by fibre type. However, this development is still in its infancy and cannot yet be widely used. Besides, different types of fibre cannot yet be chemically separated from each other. This type of sorting is being investigated, but it is still in the initial phase. For textiles to be reused in a new form, all buttons, zippers and labels (its fibre composition is often different from the garment) must be removed (entirely) from the clothing to speak of a mono stream. This process of manually removing all these things, is called cutting and cleaning. In addition, the fabric can also be divided into small pieces of fabric, clipping. This is only done to a certain extent in the sorting centre in Sneek and in Goudgoed. The problem of labels in clothing is highlighted. These labels tell what material the garment is made of, but the labels themselves are made of a different material. Thus, they disrupt the flow of a particular waste stream. As a solution, it is proposed to prohibit the use of labels with a different material, however, there is no legislation for this yet.

4.6 Textile collection and sorting: Social inclusiveness

In the municipality of Groningen, people with a distanced to the labour market perform the collection and sorting of second hand textiles. Goudgoed offers local employment / work experience places for people with a distance to the labour market. Goudgoed is a work-learn company, with the aim of guiding people to return to the regular labour market. Approximately 200 participants work on the basis of various schemes. These participants have all kinds of different backgrounds, from ex-prisoners, to people with a mental disability, to homeless people, to refugees. These people all work according to their competence, they work in places where they can be deployed. They work at their own pace and their schedules are tailored to their needs. For some participants, the only goal is to be on time. Another participant is quickly overstimulated and works three hours a day. The goal is to activate people. Professional care workers are assisting these people, these people are deployed from Werkpro. In addition, seven

employees are currently fully on the Goudgoed payroll, four in the textile department and three in the thrift store. These employees are not care workers, but they do have an affinity with the target group.

In the municipality of Leeuwarden, the containers are emptied by professionals. Sorting is done in the sorting centre in Sneek in a similar way, with similar goals. It is not tracked down why people with a distance to the labour market are often employed in textile collection and sorting. It has probably grown that way historically. For example, The Salvation Army has set itself the goal of deploying people with a distance to the labour market in places where they are fully appreciated. When setting up the sorting centre in Sneek, it was premeditated to deploy people with a distance to the labour market.

It seems to be the goal of many collectors and sorters to use people who are at a distance from the labour market, the Netherlands can be seen as a precursor in this aspect. However, it does involve problems. It is very complex to run a company where a lot of people with a distance to the labour market work. First of all, the continuity of the collection and sorting is always under pressure. The participants often do not work full days, they work relatively slow and regularly fail to come to work due to illness, a job interview or outflow to a regular job. If this happens there is the risk of the process being delayed. The collector or sorter could deploy temporary (professional) workers, but this is not in line with the principle of social inclusiveness. Also, this will cause an increase of the costs.

R5: 'So it is actually two-fold. On the one hand, I am always happy when someone comes here and says I have found a job, I am leaving. And on the other hand, from the textile department I hear, now we have a problem, I have a shortage of one driver, so those are constantly things you have to deal with.'

It is suggested by the experts that people at a distance from the labour market are often not fit for a sorting job. Sorting must be done precisely, often more than 100 or 250 different types of textile are sorted. Sorting must lead to many different types of textile in order to be able to use it as a useful flow in a circular chain. In a professional company, decisions are made every millisecond about which article to throw in which bin. This efficiency and precision cannot be expected from people with a distance to the labour market. Therefore, professional sorters would be more suitable for the job.

R3: 'But we were told by the sorters, yes, that is quite difficult to combine [circularity and social inclusiveness]' … 'we've seen those people working there too, and it's just not very easy work, because you really have to make a decision every millisecond, those people throw clothes in 18 different bins, non-stop.'

However, the sorting centre of Goudgoed and Omrin/Reshare do not necessarily see low efficiency as a problem, as long as the costs do not increase. They must be able to afford the exploitation and the costs of the building etc. However, risk management is every day's business when approximately 90% of personnel are people with a distance to the labour market.

R6: 'There is confidence that, where possible there is that commitment [of deploying with a distance to the labour market], sometimes we also just have to deal with the fact that people are simply not there or people for whom it turns out that standing for a long time is a problem. So all kinds of practical things can cause that the availability of people for such a sorting centre is also difficult.'

Moreover, there is the problem of valuation of people with a distance from the labour market. It must be determined what the wage value of a group of people is for a number of hours they work, for example 20 FTE. From the perspective of the collector and sorter their value should depend on their productivity (in total), from the perspective of the company that supplies the people with a distance to the labour market this should depend on the hours they work. In order to solve this problem, there must be a dialogue between the parties involved about the reasonable price that should be payed and adequate agreements must be made. There is a lot of controversy about this, there is no clear answer yet.

4.7 Destination

After the sorting process, that takes place at Goudgoed part of the clothing ends up in its local and regional second hand clothing shops. This is the textile flow that can still be reused. The second-hand shops of Goudgoed buy the textiles from their own textile sorting department, which is cheaper than buying from a third party. The reusable non-fashionable part together with the non-reusable, but recyclable part of the sorted textile is sold to Dutch textile sorting companies: Reshare and Hoba-holding. These parties further sort the textiles. They also often do the cutting and cleaning and the clipping process. A part of the stream that is no longer usable in its current form but can be recycled in another form is sold to entrepreneurs who would like to do something innovative with the textiles. The part that cannot be reused or recycled becomes residual waste and is ultimately incinerated. The share of textiles belonging to this group is increasing.

When the textiles of the municipality of Leeuwarden are sorted in the regional sorting centre, the wearable, fashionable clothing goes to Omrin its thrift shops ‘Estafette’ (=relay). Exclusive vintage pieces are taken out and sold to vintage shops. The non-fashionable, wearable textile is put in big bags and sold to (trade) organizations abroad. The recyclable part is sold to mainly international recycling companies, who process it into among other things, car upholstery or polishing cloth. The part that cannot be reused or recycled becomes residual waste and is ultimately incinerated.

4.8 Destination: circularity under pressure

The interviews show that there is quite a misconception about the destination of textiles. The majority of people do not know that the textiles are not distributed to poor people in Africa, but that textiles are sold to them.

R2: 'I recently asked friends of mine, what they thought would happen to it, well they really think that with all textiles that they throw into that container, they help poor children in Africa’

The Salvation Army has been collecting clothes for 130 years. In the past it was meant to be able to dress people who did not have decent clothes. Over the years, The Salvation Army is professionalized. That has changed the purpose of collecting clothes from, dressing people who cannot afford it, to generating money by selling textiles for non-government subsidized projects. This change posed another problem.

The experts explain that collecting parties involved only had an eye for profit, this includes Reshare, Sympany and other charities (less then 10 years ago). The municipalities that work (or worked) with these parties to collect the textile, were not concerned with what happened to the

textile, and neither were most collecting parties. So, the textile is collected by a party, they pick the best pieces from the clothing, and then sell the unsorted textile to the highest bidder. This is often a party abroad, because they pay more for textile than parties within the Netherlands. These traders do not care who buys their textile and are not concerned with what happens to it. Since the collecting party does not sort the textile, in reality, the non-recyclable textile is dumped across the boarder.

R6: 'And then I asked the very simple question: what do you actually do with the textile? And then he said, well, it is all rubbish what you collect nowadays, so I send it straight to Africa and I don't know anything about it.'

Another side effect of selling the unsorted textile to the highest bidder, was that Dutch sorters were not given the option to sort, because in a price comparison they were always fell by the wayside. The realization that this state of affairs is not desirable came late, probably because the collecting parties were often charities. They raised money in order to finance projects for disabled people etcetera. It was therefore sensitive to speak negatively about such an enterprise, with a large positive connotation.

Recently, more attention has been paid to transparency, it is acknowledged that once the textile leaves the country there is a low transparency in the supply chain. Good transparency is now seen as important, yet it appears that respondents also do not know exactly where the exported textile ends up and how it is used. Solutions are not optimal. It is said that the destinations should be monitored, but this is difficult in practice.

Currently there is a lot of textile waste being incinerated. This is also done relatively much in the municipality of Groningen and Leeuwarden. It is been frowned upon by other municipalities, because it is inconsistent with the wish to be circular. But, they say, it is better than dumping non-recyclable textiles abroad. There is no consensus whether it is good or bad. However, a more constructive purpose for non-recyclable and / or poor-quality textile must be sought.

Furthermore, Goudgoed sells its textiles to Dutch parties that are affiliated with the VHT (trade association of textile collectors and sorters), Hoba Holding and Reshare. Reshare sells its textiles to parties that sign a code-of-conduct. Agreements are made here that must be observed about working conditions, such as the prohibition of child and forced labour. Safety must also be in order, for example there must be fire extinguishers. The question is whether this code of conduct is being complied with. Reshare indicates that once in a while someone will check whether the parties indeed comply with this, this can give a distorted picture. Suppose these parties adhere to the code of conduct, then anything is still possible, these parties also resell the textiles, and where it ends up is unclear. Whether it will be reused or recycled is the question, there is a chance that it will be incinerated or become landfill.

R7: 'Yes, those codes of conducts, yes, we ask for it and we think it is important, but at the end of the day it is of course just how hard you believe it and how much confidence you have. And of course, a party that is willing to sign a code of conduct may be slightly more reliable than a party that does not want to or that immediately quits, so it does select somewhat. But of course it is not a warrant, not a guarantee that you will stay out of the misery.''

At the moment there is a completely different problem. Although the textile market is often erratic with strongly fluctuating prices, currently, the demand for textiles is so low, due to the

COVID-19 pandemic, that much of the textiles are stored in sheds. Not a single party is interested in it. A solution is being sought to use the textile within the Netherlands. The branch organization NVRD (Royal Association for Waste and Cleaning Management) has made an emergency call to, among others, the construction sector, to take over textiles, because otherwise it will end up in the incinerator. This indicates that it is necessary to look for a (new) destination or sales market for the textile.

R6: 'This actually illustrates, in a very wry way, the state of affairs, how we are doing. So on the one hand, very nice ambitions in terms of policy. But the practice actually sits with hands in the hair, because we do not know what to do with the material that is currently being released. And that is simply because for years we have looked the other way. It just has not been seen what happened here.'

4.9 Circular and social inclusive conditions

It becomes clear from the interviews that the parties involved in Groningen and Leeuwarden do have ideas about what circular and social inclusive conditions and principles are. They say that there is a focus on these principles, and that these are discussed with parties they work with, but this is nowhere to be found. The principles discussed are: reusing and recycling, acting on the highest possible level, sustainability, (more than) closing chains, innovation, being waste free, waste separation, being environmentally friendly, being social, being transparent (in the value chain).

In the permits little or no attention is paid to circularity or social inclusiveness. Interviews with respondents point out that informal agreements are often made regarding circularity and social inclusiveness, these are usually not formally established. The only formal notification devoted to 'circularity' is the following sentence, in the permit of Goudgoed:

'The collection takes place for the purpose of realizing reuse.'

One respondent stated that more formal requirements should be attached to obtaining a permit for the collection and sorting of textiles to meet the desire to be circular and / or social inclusive. In order to obtain a permit, consideration should be given to matters such as: transparency, environmental performance, risk management and cost efficiency. According to this respondent, in the context of circularity and social inclusiveness, these aspects of a tender or contract should be 'conditio sine qua non', i.e., without meeting these conditions, the permit is not issued.

Furthermore, all respondents indicate that textiles should be granted to a collection party free of charge or the municipality should pay a fee to the collector, instead of having to pay to the municipality for the collection of textiles. Sympany is expected to share part of its proceeds with the (former) municipality of Haren. Omrin must pay dividends to the municipality Leeuwarden. The respondents say that system is no longer feasible. The business model of most collectors, both commercial and non-profit is under pressure, because of low prices and poor-quality textiles. Even if an organization is non-profit, they must still be able to support themselves. It is stated that the costs for the collection and sorting process should be covered by the waste tax (mentioned in table 2), as for all other waste and recycle streams, this is currently not the case for textile.

R4: 'There is a huge deficit in the chain.'

If an investment in circularity and social inclusivity is expected, it is a necessary condition that textiles become free for the parties that collect it. At the same time, it is said to be essential that contracts are committed for a longer period, preferably to one party. If contracts are concluded annually, one cannot expect a party to make an investment in circularity and / or social inclusiveness. In the past, the highest bidder was often chosen to collect textiles, because the municipality saw the textile as a source of income, with no attention paid to the aforementioned matters. The current trend is to be circular and socially inclusive, which should also be reflected in agreements made.

R2: 'We have agreements with everyone, in which it is said, that we indeed, for example, use SW employees (sheltered employment) as much as possible and so on.'

In addition to the fact that agreements should be formalized, it is also important that they are monitored. In practice it appears that this is often not the case. Agreements can then be made in the preliminary phase, but if these are not complied with, they are of no use. In many cases this does not happen, or not enough. This creates a discrepancy between what is formally agreed upon in the contracts and what is happening in reality.

4.10 Actors

The roles of non-governmental actors involved in textile waste management in Groningen and Leeuwarden and their connections were all discussed in the previous sections.

This section therefore only deals with governmental institutions. The authorities involved can be divided into the supranational body, the European Union, the national government, Rijksoverheid, the provinces Groningen and Friesland and the municipalities Groningen and Leeuwarden themselves.

The European Union has a vision that is reflected in the green deal. This can be seen as our roadmap for making the EU sustainable. It is also the task of the European Union to impose legislation for textile waste.

R1: 'The green deal is panting in the neck of the national government.'

The national government is also developing a vision based on the European goals. The national government, the Ministry of Infrastructure and Water Management, is advised by various parties such as Rijkswaterstaat, the CPB (Central Planning Office) and the Circular Textile Working Group. These institutes advise the Dutch government on what steps should be taken to meet the European goals and sometimes even go a step further.

R: 'By the way, we are number one in the world, so we do suffer a bit from an inhibitory lead.'

It is claimed by several interviewees that The Netherlands is a forerunner in the field of second-hand textile management. Because of this frontrunner position, in Brussels there are people lobbying for matters which are already being anticipated in the Netherlands. Dutch policy also reveals concrete points for improvement that are not mentioned in policies on a European level. For example, in the 'Policy program circular textiles 2020 – 2025' an appendix is included on the poor accuracy of clothing labels (Rijksoverheid, 2020). For textile waste management it is important that this problem is tackled, because when sorting second-hand textiles, material flows should be properly sorted. Based on the national ambition, laws are imposed on Dutch municipalities that have to carry out textile waste management.

The role of the province is unclear. This government layer has no clear influence on textile waste management of a municipality. It is noted, however, that some provinces have a clear circular vision and focus on social inclusivity, while other provinces do not mention this in their policy. The province of Friesland has a clear circular goal, they want to become the most circular region in Europe, whereas the province of Groningen does not. This may have to do with which deputies are in the province. Because the municipality is the executive body of textile waste management, it may be that a province that does not have circularity and social inclusion high on the agenda, still has a relatively progressive textile waste policy, because goals and legislation are determined at national level. It is interesting that it cannot be assumed that a province with a circular policy also has municipalities with a circular policy.

R1: 'What you see is that it is very dependent per province. Friesland is very much committed to circularity, Drenthe too, and Groningen a little less recently. But that sometimes has to do with who is deputy. And I suspect that this is the case in Groningen. And the one who was deputy on economics recently stepped down. So it could very well be that things will change soon.'

As mentioned, the municipalities are working towards the Dutch and European goals. Ideally, they should have their policies aligned with the national and supranational bodies. They have a leading role in textile waste management. What this means is: create, implement and monitor policies. However, several municipalities do not have the know-how to play a role in working towards a more circular and social inclusive future. Not every municipality has an official who has knowledge in the field of textile waste.

R6: 'Most of the municipalities still send their textiles across the border. And they are not even aware of it. Those who decide on this do not actually know that it is the result of the choices they make.'

Mostly, municipalities outsource the execution of textile collection and sorting to another party. This may be a party that is very concerned with circularity and social inclusiveness, but this is not always the case. Certainly, if there is no awareness and / or knowledge about the problems in textile waste management, the textile waste management is often outsourced to a random party or parties. The municipality of Groningen aims high, with targets even stricter than those of the other governments.

The influence of the municipality of Leeuwarden is limited, they are led by the executing party, Omrin. Omrin, makes their ambition to be circular very explicit. It seems to be the case that the municipality of Leeuwarden has no insight into what happens to the textiles.

According to all respondents, it is necessary that legislation is imposed by the EU or national government because, otherwise no change will be accomplished. This shows again that the goals for circularity on a provincial level are not reflected by the municipalities of these provinces. Perhaps provinces do not always have specific laws and regulations regarding textile waste management, or they do not have the tools to impose consequences on municipalities is they do not meet certain goals.

R5: 'It will have to be imposed.'

It is indicated that subsidies are provided by all kinds of public authorities to all kind of small initiatives who are engaged in circular projects that possibly make the textile industry more sustainable. Most respondents think these are good initiatives. However, the comment is made

that the intentions are good, but the results are marginal. There is no vision from the government(s), what kind of projects they want to allocate money to in order to become circular. As a result, innovation is invoked, but a lot of potential remains unused. Consideration should be given to which parties get and do not get subsidies; this seems to be arbitrary.

4.11 The primary market

It is very firmly said by the respondents that the main problems originate from the primary textile/resources market. Primary fibres or textiles (new clothes) are too cheap according to how much environmental damage they cause. This is because no price is charged for the environmental damage they cause. This makes primary fibres even cheaper than secondary fibres. This in turn results in more and more new fibres and textiles being used for the production of clothing. Often these clothes are of poor quality and / or made of non-recyclable material. This clothing is imported in e.g. The Netherlands and sold in (fast) fashion chains. Due to the fact that more and more new clothes are being produced, this increases the amount of textile waste. It turns out that the part that is still usable, in whatever form, is getting smaller and the part that is considered waste, is getting bigger. So, there is much more supply than demand for second hand textiles, but there is less and less demand for it, because of the aforementioned problems. What adds to the problem is the fact that new (fast) fashion is offered to developing countries for dump prices. This textile is of the same poor quality, so it adds up to the environmental damage and it reduces sales of usable second-hand textiles even further. All this combined, ensures that the price collecting and sorting companies can get for second hand textiles is very low. This causes market failure, the price they receive for second hand clothes, cannot pay for the entire process of collection and sorting.

In order to solve this problem, suggestions are made by the respondents that there should be a price on environmental damage. This can be in the form of an Extended Producer Responsibility; this policy approach gives producers a responsibility for the environmental damage they now cause with impunity. In addition, no new clothes should be ´dumped´ in developing countries, how this can be achieved, remains unclear. And new ‘waste clothing’ (non-recyclable) should not be imported at all. In addition, all clothing should be 100% recyclable. The exact details of this also remain unclear, which makes the steps towards the goal still vague.

5. Conclusion and discussion

5.1 Conclusion

The following chapter means to answer the main research question. The results will be mirrored to the literature, and there is recourse to the conceptual model. Furthermore, a reflection will be given on the approach and process.

An attempt has been made to answer the research question:

'What are the conditions to make a Dutch municipalities' textile waste management work both in terms of circularity and social inclusiveness?'

The main results show that the conditions that must be met in order to be circular and social inclusive in municipal management of textile waste are not so easy to trace. First of all, the combination of circularity and social inclusiveness is not self-evident. Historically, textile collection is linked to a social goal. Probably from this historical link, the idea has emerged that textile collection and sorting go well together with providing work for people with a distance to the labour market. However, it is disputable whether circularity and social inclusiveness should be combined goals to pursue. Consideration should be given to the places where people at a distance from the labour market can be deployed. As indicated in the results, people with a distance to the labour market are deployed in various places in the process from collecting to sorting to transporting textile. Questions are raised about how well suited these people are in some parts of the process, such as the sorting process. Perhaps the tasks of social work should be reformed, where sorting is done by professional workers and the containers are emptied manually by people with a distance to the labour market. This means in practice, that local and regional sorting with people with a distance to the labour market should be abandoned. It is not clear then, where and whether these people can be deployed in textile waste management. If the goals of circularity and social inclusiveness are to be combined in textile waste management as a whole (collection, sorting and transport), as is the case currently, the most important condition that should be met is that the staff continuity is not continuously under pressure.

In literature, no attention was paid to social inclusiveness within the context of (textile) waste management. However, SROI of a social enterprise was being discussed as a metric that compared the monetized social costs of a program with the monetized social benefits of achieving a result (or set of results). If social inclusiveness is seen as an important part of (circular) textile waste management. One may have to wonder whether the social benefits are not greater than the social costs. If this is indeed the case, then it could be argued that these organizations should be supported, no matter what. One of the problems, that is widely recognized, is the financial health of the companies that is coming under increasing pressure, due to a combination of facets like: poor quality textile, no sales market etcetera. The poor financial situation, in which these organizations sometimes find themselves in, should not lead to decisions that may affect social inclusiveness. If the wish of municipalities is to have a both circular and social inclusive textile waste management, a condition is that money should no longer play the main role. The fact that sorting may take longer, because people with a distance to the labour market work less efficient, should not matter.

In addition, better legislation and regulations on the (international) textile waste flow should be imposed. This can counteract both the surplus of textile, both primary and secondary, and the poor quality of textile. Subsidies should be better directed towards projects that are expected to have a major impact. Clearly, innovation is needed in the field of collection and sorting facilities. Also, transparency is a precondition for a circular and social inclusive textile waste management: this concerns both consumer communication, cooperation between different actors, and the (international) flow of textiles. These conditions cannot be met on just the scale of the municipality, they reach far beyond their zone of influence. These conditions can be linked partly to the key influences on micro, meso and macro level, that emerged in the literature and were conceptualized in the conceptual model. The conclusions cannot be linked one-on-one to the key influences 'circular design', 'integration of actors' and 'supply chain organization' of the conceptual model, for this the conceptual model is too abstracted. It can be concluded that the emerged conditions, are supported by what has already been written in literature. The literature has handed points of attention on how textile waste management can be made circular and social inclusive. However, these points of attention were not yet focused on textile waste management, which this study has supplemented.

5.2 Discussion

The municipalities of Groningen and Leeuwarden were examined in the case study research. The municipality of Groningen was relatively open about their course of action in the conducted interview, shortcomings were not concealed. They did not want to disclose contracts, but did provide information on collection permits and decision documents within eight weeks after submitting a WOB request. An interview was held with an officer from the municipality of Groningen, a representative of the executive party Goudgoed and with Reshare, the party to which Goudgoed brings its textiles. Two interviews were held with independent experts regarding, among other things, the textile waste management of the municipality of Groningen and the approach of other municipalities. By talking to representatives of this parties, the most important actors in the domestic chain are reached, for the municipality of Groningen. By talking to experts in the field of textile waste management a more general impression was obtained. It has been discussed which conditions to be pursued in order to be both circular and social inclusive in textile waste management and whether this combination should be pursued. An interview with the executive party of the former municipality of Haren, Sympany might have given a broader perspective, since this municipality is relatively rural. After obtaining the WOB files, it became apparent that this year they still have a task in the textile waste management of this former municipality. Given time limitations this actor has not been interviewed. Though, the actions and vision of this actor are comparable with that of Reshare. They collect textile to generate money for projects with a social character, so it is likely that an interview would not offer a whole new perspective. Hoba-holding is another actor that has not been interviewed, since it became apparent that this actor had a role in the supply chain relatively late. It would have been potentially interesting to interview this actor, however Reshare is the main party with which Goudgoed cooperates. Because the actors involved in the textile waste management of the municipality of Groningen were relatively critical of their own processes, a good outlining of the case could be made. For this reason, one can speak of relatively good saturation, in contrast to the case of the municipality of Leeuwarden.

The municipality of Leeuwarden was not willing to participate, it was impossible to conduct a telephone interview. After approximately eight weeks of sending many emails and making a

lot of calls, a trainee, who just started to work at the municipality answered the interview questions by email. These answers were very brief and many questions remained unanswered, there was no possibility to ask questions about the given answers nor could it be traced why some questions had not been answered. Moreover, no information was released on the basis of the WOB request. This may indicate that this information was not available, of that they did not want to disclose it, although this is prohibited. Moreover, when a WOB request is submitted, the receiving party must cooperate and provide pointers for documents that may be useful if the WOB request is formulated too general. The administrative authority must assist the applicant in specifying the WOB request (Lexman Advocaten, n.d.). No documents were provided whatsoever and no pointers for documents that may be useful were handed. As the results indicate, in some municipalities there is no know-how on the subject, this might be the case in the municipality of Leeuwarden. Omrin, their executive party was able to provide me with information through an interview. It does not become clear whether or not there are formal contracts between the municipality of Leeuwarden and Omrin, what is meant by 'quasi-in-house contracting' remains unclear. It seems as if there is a common shame among municipal officials, that they have no knowledge about the textile waste management. About everything concerning the contracts, it seems they do not want to disclose anything. Perhaps there are no formal agreements or there are matters within the contracts they do not want to disclose publicly. Although this is an assumption, it seems that under the guise of secrecy, all requests were answered very poorly or declined. It would have been insightful if both parties involved could have been interviewed properly. The lack of their input might have distorted the outlining of the case.

It would also be possible that by choosing these two municipalities not all matters have been discussed. Other conditions to be circular and social inclusive might have emerged if other municipalities had been chosen. This could be related to the waste collector that carries out the textile waste management. In the municipalities of Groningen and Leeuwarden, the waste collectors in any case seem to be working on circularity and social inclusiveness, at least in theory. If a municipality outsources the collection to a collector that is only concerned with making money, one condition could be: switch to another collector. The generalizability has been increased by speaking to experts in the field of circular textiles. They have a helicopter view of the issues at stake, which made it possible to recognize patterns that played a role in textile waste management in several municipalities. Although there probably will be differences on the micro scale, these municipalities are nevertheless subject to the overlapping problems on meso and macro scale.

Some comments can be made about the content and quality of the interviews. It was sometimes difficult to compare answers of different interviewees, because not in every interview the same questions were asked. The topic list / interview guide was the guidance for the interviews, since it was chosen to conduct semi-structured interviews, there was also the freedom to deviate from this. Interesting findings have emerged from the interviews, once they took a different path, but these have not necessarily been discussed with all interviewees. Furthermore, sometimes questions were asked that could be somewhat suggestive. This was particularly the case in the first two interviews. These interviews were transcribed before the other interviews took place which caused the interviewer to be more aware of it during the remaining interviews. The same goes for asking multiple questions in one, these were tried to avoid. At certain moments, too little was asked about a subject, so that sometimes the depth on a certain subject was missing. This has often been compensated for with information from other interviews. Moreover, it is

possible that respondents gave answers that were desirable from their position within the organization. Although, in general quite critical notes were made about the organizations they worked for. As mentioned in the methodology, most of the interviews took place remotely because of COVID-19. If the circumstances had permitted more face-to-face interviews, it would have been preferred, since the interviewer has the ability to pick up social cues. Extra information can be extracted from the tone of voice, intonation and body language, next to the verbal answer of the interviewee on a question (Opdenakker, 2006).

As mentioned in the methodology, it was aimed to reach transparency and communicability by describing the analysis and coding process carefully. To reach coherence, it was attempted to fit the theoretical framework to the research question and the analysis. It had to be kept in mind that the interviewer's personal view should not cause any bias. Firstly, by being aware of a potential bias, the interviewer has tried to distance herself from personal preferences, which removes part of the bias. This bias is also reduced by adequately performing a qualitative content analysis. All interviews have been transcribed literally, which kept the personal preferences of the interviewer to a minimum. In contrast to summary transcribing, where the interviewer already has to make a choice in the transcripts what is and what is not important to take into consideration. The results chapter was formed on the basis of categories, codes and subcodes that emerged from the interviews and the background of the policy documents. Since peer debriefing was used, another researcher also checked whether there were no 'selective' categories, main codes and subcodes.

This study has made clear which conditions are necessary to make textile waste management circular and socially inclusive. This offers leads for follow-up research. Given the limited amount of research that has been done into problems within the textile waste management, the first step would be to repeat this research on a larger scale, with more involved municipalities, possibly also abroad. This allows this qualitative research to be quantified. So far, this study has shown that (most of) the conditions have not yet been met. This gives cause to investigate how these conditions can be met. This study provides handles to prioritize different types of research. Moreover, new research can be devoted to whether this combination of being both circular and social inclusive is appropriate, since it seems to be based on nothing but a historical link. Some other matters remain unclear. For all waste flows except textile, the costs of waste management are covered by the waste tax. It has probably been decided that this is not necessary for textiles, because it is seen a source of income. Since the business model of textile has come under pressure, it would be recommended that the costs for textile waste management would be covered by the waste tax. Besides, one may wonder why this revenue model has not been applied to other streams, such as waste paper, which also generates money. Finally, it must be investigated what exactly is expected from circular textile waste management, because there is uncertainty about whether incineration, for example, is a circular solution. If the alternative is 'dumping textiles' abroad, then maybe it is. However, when talking about circularity, one would expect a little more than the least bad alternative.

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Appendices

A. Topiclist Interviews

Intro	Introduction & goal interview Ethical considerations: Do you object if I record the call? You can stop the conversation whenever you want. The results from this interview will only be used for the purpose of this study.
Background	1. Could you please introduce yourself? 2. What is the core business of the organization? 3. What is your role within the organization?
Collection and sorting	4. What happens to textile waste within your organisation? 5. What does the value chain of second hand textile look like? (e.g. before/after your organization handles it) 6. Where does the second hand textile eventually go? (e.g. clothes that cannot be sold) 7. To what extend is there transparency about what happens to the textile? 8. What are the problems associated with the organization of collection and sorting second hand textile? 9. How can these problems be removed or reduced? 10. Could diftar be used as a solution? 11. Could UPV be a used as a solution? 12. How can both quality and quantity be guaranteed for the business case?
Actors (non-governmental)	13. How is the organization related to third parties when it comes to textile waste? 14. What is the role of actor X? (e.g. second hand clothing store, trade organization) 15. How is this collaboration structured? (e.g. is there a hierarchy? Is there a network of actors?) 16. Are the goals of different actors compatible with each other? 17. Can you tell what the difference is between a charitable and commercial institution regarding textile waste? 18. Are they both suitable for implementing the waste policy?
Contracts	19. Are the collaborations with other organizations contractually bound? And how? (e.g. do organizations need to pay (to the municipality) for (collecting and sorting) textile?) 20. What are the requirements for an organization to execute the collection and sorting of textile waste? (e.g. circularity, social return) 21. How specifically are these requirements be defined? 22. Are these requirements achieved and monitored?

Governments	23. What are the goals of the textile waste policy (of the municipality)? 24. What is the influence of other governments on the textile waste policy? (e.g. neighbouring municipality, province, national government, European Union) 25. Are the goals of different governments compatible with each other? 26. Has much changed in the textile waste policy over time? (e.g. How is this noticeable after 2010?
Circularity (guidelines, conditions, requirements)	27. How would you describe circularity? 28. Are there guidelines for circularity within the textile waste policy? 29. How is circularity in textile waste management measured? 30. When would you consider textile waste management circular? (e.g. level of the organization/level of the value chain) 31. What does the organization do to meet the conditions? 32. Should more attention be paid to circularity? 33. What is the role of the organization in towards a more circular textile waste management? 34. To what extent do you see barriers in terms of circularity in textile waste management? 35. How can these barriers be removed or reduced? 36. Which characteristics/requirements are essential for a circular textile waste management?
Social Inclusiveness	37. How would you describe social inclusiveness? 38. Are there guidelines for social inclusiveness within the textile waste policy? 39. How is social inclusivity in textile waste management measured? 40. When would you consider textile waste management socially inclusive? 41. What does the organization do to meet the conditions? 42. Can an organization or chain be circular without having a social return? 43. Does the requirement of a social return lead to fragmentation of the collecting and sorting process? 44. Should more attention be paid to social inclusiveness? 45. What is the role of the organization in towards a more social inclusive textile waste management? 46. To what extent do you see barriers in terms of social inclusiveness in textile waste management? 47. How can these barriers be removed or reduced? 48. Which characteristics/requirements are essential for social inclusive textile waste management?

Outro	49. Are there any other issues that need to be addressed? 50. Do you have any questions or remarks? (e.g. critical remarks)

B. Coding Scheme (Category + Code + Sub code)

Category	Code	Sub code
Collection and Sorting	Logistics & Facilities	Aboveground container Underground container Mechanical discharge Manual discharge Big or small containers Door to door At store Mechanical sorting Chemical sorting Separation and processing machines (e.g. Post-separation, Fibresort) Not labour intensive Labour intensive In its infancy Post-separation Source-separation Aesthetic Clipping (pieces of fabric) Cutting and cleaning Sorting centre (local, regional, national) Distance to other containers Information and communication Poor quality and/or maintenance Bigbags Good service Good facilities
	Quantity	Too much textile Scarcity textile Less demand than supply More demand than supply Scale must be large enough to be cost efficient Price on basis of quantity (not quality)
	Quality	Good/Fashionable/Useful/ ‘Bovensoorten’ Good/Not fashionable/Useful Poor/Useful/As Source/ ‘Ondersoorten’ Too Poor/Waste/Not useful (Separate) Monostreams Mixed fibres Changing fashion norms Cleaning (remove residual waste from stream) Dirty containers

	Destination	Dutch market Local Regional National Thrift shop (Exclusive) Vintage shop Foreign/International Recycling companies Automotive industry Cleaning industry Keep within the Netherlands Incinerator Fiberizers Final destination unknown None (No party interested in textile) To the poor/ people on budget
	Diftar	Not in cities Experiment Hard with high rise buildings Awareness Negative impact (waste in textile) Positive impact (no textile in waste) No proper numbers Different perspectives good/bad Polluter pays Financial incentive
Contracts	Aspects tender	Transparency Environmental performance Risk management Cost efficient Conditio sine qua non No tender Awarded Most economically Little to change Textile awarder for free (over 20 years) Bidding against each other Social inclusiveness Register below costs

	Aspects contracts	No costs (receiving) textile from municipality (currently) Costs (receiving) textile from municipality (likely future) Uniform tariff waste processing Non-profit (healthy organization) Performance Dividend (to municipality) Long term agreement One party involved Requirements Informal Cooperation with waste reducing companies Financial Commercial Confidential Uniform tariff Business case (under pressure) Change in policy since 2010 Social WOB (Wet openbaarheid van bestuur/public access law) Monitoring contract agreements (hard) Transparency Discrepancy contracts and reality Completeness of returns (volledigheid van opbrengsten) Temporarily
Actors	What kind	Trade organizations Textile recycler (e.g. Wieland) Individuals Entrepreneurs Social work company (e.g. Empatec) Second hand clothing store (e.g. Goudgoed, Estafette, Reshare) Textile collector (e.g. Symphany, Leger des Heils, Goudgoed, Reshare) Waste processing company (e.g. Omrin) Fast fashion chains (e.g. Primark, H&M) Commercial Charity Not for profit Rijkswaterstaat Certified

		Cooperation Consumers
	European Union	Green deal Vision Impose legislation
	National Government	Impose legislation Vision National policy Set goals Ministry I&W Rijkswaterstaat ‘Afval circulair’ CPB input national policy National reports
	Province	Attention for circularity No attention for circularity Influence deputies
	Municipality (Characteristics and policy)	Work towards vision EU and NL Large student population High urban level Shareholder Customer / Client Leading role Neighbourhood differences Little know-how Harmonize Create, implement and monitor Responsible for waste Outsourcing collecting and sorting Low costs for citizens Capture target Aim high Facilitator and initiator Organic organization

Circularity	Principles	Reuse Recycling Sustainability Closing Chains Innovation (e.g. fibresort, chemical sorting) Waste free Highest level Environmental Social Transparency (in the value chain) Waste separation More than closing chains
	Problems	Inhibitory lead Late realization Problem (charity case) (No price for) environmental damage No sustainability No view on flows Low transparency Discrepancy values and actions Perception: to help the poor Lousy traders Dumping (new textile) Dumping (second hand textile) Bad quality Price textile low Textile in residual waste and vice versa Primary market biggest problem Cheap primary textile/fibres/resources Market failures Code of conduct no guaranty Laziness and indifference No responsibility Corona Frontrunner Parties only concerned with profit No consensus incinerating good or bad Lots of small initiatives: good intentions, little result Little know how policy makers Hard to measure Scale of market is worldwide Solutions are futuristic but not cost-effective Progressive goals

		Secondary fibres cheaper than primary fibres Unclear steps towards goal Downcycling Exporting non recyclables
	Measures	Amount textile residual waste (and vice versa) Sorting tests/degree of separation Monitoring destinations Monitoring annual reports Monitoring degree of recycling Monitoring degree of separation Auditor's report VIHB-numbers
	Solutions	Good communication (where and why to separate) Transparency Good facilities (for collection and separation: pick up door to door & textile container) Post-separation Tax (based on degree of separation & amount of residual waste) Cooperation EPR (Extended Producer Responsibility) Retour premium Certification Member trade/branche association Code of conduct Investments and innovation Subsidy Cut the process in pieces Dialogue Find purpose for non recyclable/poor quality textile Lobbying Market consultation 100% recyclable clothes Sales market for secondary textile No more import 'waste clothing' No clothing labels Upcycling Same price as abroad

Social Inclusiveness	Guidelines, conditions, requirements	SROI People with distance to the labour market SW Social Workers Scale: Local and Central Volume plays role Professionals / professional workers Outflow of people to regular jobs Dialogue Mix of employees Precursor in the Netherlands Regional sorting centre Minimum of X fte (e.g. 25 fte) Rhythm for employees Creating (local) employment Diner and beer (for the homeless) Risk management People employed with affinity with target group Learn-work character Historically linked Polish and Bulgarian workers Characteristic for textile flow Own competence own speed Value depends on productivity Activation of people
	Problems	Continuity under pressure Own schedule, own wishes Expensive facilities Company with a lot SROI workers is complex to organize Sorting in over 100/250 fractions is hard Results not ‘effective’ Guidance for participants Organization and selection of participants is sensitive Salary value SROI employees vague Combination with circularity hard Low speed