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municipality approaches to citizen support in sustainable fashion consumption

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Title: Municipality approaches to citizen support in sustainable fashion consumption

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Mistra Future Fashion deliverable: D.3.2.3.1

Edition: Only available as PDF for individual printing

ISBN: 978-91-89049-54-3

Mistra Future Fashion report number: 2019:21

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A Mistra Future Fashion Report

Mistra Future Fashion is a cross-disciplinary research program, initiated and primarily funded by Mistra. It holds a total budget of SEK 110 millions and stretches over 8 years, from 2011 to 2019. It is hosted by RISE in collaboration with 15 research partners and involves more than 50 industry partners.

www.mistrafuturefashion.com



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summary

In recent years, many Swedish municipalities have taken actions and initiatives to support citizens to more sustainable textile and fashion consumption. One aim of the study is to describe more advances such initiatives, what actors in municipalities, affiliated organizations, and collaboration partners that initiated the actions. Another aim is to investigate existing government policies related to sustainable fashion consumption that influence the initiatives and actions at municipal level.

The work is based on a combination of approaches: municipality reports and meta-studies on relevant municipal initiatives and interviews on specific measures with officials that have been involved in textile and fashion related actions. Finally, literature was reviewed on policy measures and influences that can have initiated the activities on sustainable fashion consumption at municipal levels.

Amongst the most common actions and initiatives, we find that waste-related actors provide or enable different means for collection of textiles that otherwise would be waste, at recycling centers and in waste rooms close to households, besides providing space for traditional textile collection bins of charity organizations. Typically, municipal waste actors collaborate with charity organizations, which sort and make use of collected clothing and textiles by either selling them in own shops, distributing in aid programs, or selling to recyclers. There are also initiatives that enabled or, with the help of provision of municipalities, that promote repair and redesign of old clothes. These initiatives are often connected with second-hand shops for textiles or separate as own initiatives. Often, that kind of demonstrations and repair workshops have the objective of combining environmental and social sustainability. There are examples of how conventional recycling centers have been renewed to enable better use of products, including textiles, that otherwise would be waste. Such products are sorted out to be repaired, upgraded or sold second-hand. Charity and non-profit organizations collaborate to run workshops, shops, cafés, and restaurants in order to offer a more galleria-like atmosphere to visiting customers. Municipalities also take actions to raise public awareness on environmental aspects of textile consumption and production and inform citizens on how to better care for clothes and what to consider when buying new. This happens when municipal organizations provide means for campaigns as well as continual information or enable information dissemination and workshops in collaboration with other actors.

Obviously, the EU Framework Directive, the Swedish national waste program, and other textile related efforts of the Environmental Protection Agency have had a strong influence on municipalities and actors of the waste sector owned by municipalities to take actions to support citizens to sort out textiles for reuse and recycling, and more sustainable textile consumption. A number of other policies and instruments have also contributed, such as ecolabels, consumer information, and the long-standing discussions on extended producer responsibility, etc. However, it is not possible from the study to single out what policy measures that have influence municipalities to stimulate sustainable textile consumption the most. Rather, it appears like the combination of public debate, successful projects together with the mix of policy measures on waste, reuse and recycling, consumption, circular and sharing economies, cause synergies and momentum. Apparently, municipalities also get inspired and learn from each other.

The study leads up to a package of **recommendations to municipal and national policy-makers and officials in municipal organizations**, for instance:

- The political level in municipalities should endorse and support initiatives of their organizations and consider what objectives and targets that should be achieved, as well as what methods that should be used to evaluate the actions and their effects.
- The officials should encourage further experimentation and actions by enabling and providing resources to support the public in all aspects of sustainable fashion consumption. Consider objectives and targets from start in order to design sensible evaluation methods.
- That policy-maker should set national goals and targets for textile collection, reuse, and recycling. Develop corresponding standard methods for the measurement of target fulfilment and support municipalities in the implementation of them.

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1. introduction

There is an increasing understanding of the unsustainable consumption patterns of our contemporary society as well as the use of toxic substances or substances with unknown properties.

The global production and consumption of textiles has been pointed out as one of critical areas. Producers have increasingly begun to take actions in raw material sourcing triggering a number of activities such as cultivation of both environmentally better and organic cotton, recycling of synthetic fibers into new fibers and textiles, substitution of hazardous process chemicals, improved wastewater treatment, etc. Some of the international brands collaborate to set new standards and to put forward more stringent environmental requirements on contracted upstream suppliers.¹

There are several reasons for the increasing global consumption including economic growth, increasing population, overproduction due to rapid replacement of collections, and mismatches between production and demand due to faster fashion cycles as some of the most prominent factors.

In 2015 the global production of textile fibers was about 90 million tons, which is more than twice as much as the production volume in 1990 (CIRFS 2017). The forecast to 2030 predicts that the global demand for textile fibers will double or more from the current level (Textile World 2015).

The Swedish households increased their expenditures for clothing and footwear by 50 per cent between 2000 and 2010 (Konsumtionsrapporten 2011), and by 24 percent for the period between 2005 and 2015 (Konsumtionsrapporten 2016). In amounts, the Swedish consumption of clothes and home textiles was about 13 kg per capita a year in 2013 (Elander et al. 2014). The trend in household consumption of clothing and footwear is increasing (Konsumtionsrapporten 2016). Lots of the fashion consumption can be regarded as fast fashion meaning the garments are used only a few times before they get disposed of. Most of the unwanted textiles, footwear, and clothes go to the traditional waste sector for incineration. Less than 3 kg of the clothes and textiles per capita a year went to reuse and recycling in 2013 (Elander et al. 2014).

As mentioned above, a number of initiatives and measures have been launched in recent years to address sustainability issues in the textile sector. In Sweden, some of the brands and retail chains collect unwanted textiles for recycling. Some producers brand themselves by collecting used products from consumers, sending them to material recycling, organizing rental systems, repair services, etc. The ecolabelling schemes make it possible for consumers and purchasers to buy textiles that are environmentally more benign than the bulk of products in the product group. Consumer NGO:s and public agencies publish advise to the interested public on how to wash and maintain clothes and thereby extend their lifetime.

Moreover, many Swedish municipalities have in recent years engaged themselves in different initiatives for improving the sustainability performance of the textile sector and assisting citizens in sustainable textile consumption. These initiatives have addressed advise and recommendations on textile consumption, promotion of the second-hand sale, consumption and use of textiles of the municipalities themselves, conditions for segregation of textiles from the waste streams, etc. These initiatives could be highly influential on how the textile sector perform

¹ However, Machek (2018) indicate in her research that this kind of self-governance may move towards increased privatization of standards with its own set of implications and the increased tendency of dependence on global brands. The author call for further research that follow this development to assess the potential possibilities and challenges (Machek 2018)

in Sweden even if it is far from clear why and how the municipalities engage themselves. There may be lessons learned from the municipalities on how to reinforce their work and how to more effectively influence local level actors to support citizens in more sustainable textile consumption, use, and recycling.

2. objectives and approach

This research, as carried out as a part of the research program Mistra Future Fashion, has the objective to identify alternatives for governmental support to make an impact in fashion consumption through municipal initiatives.

2.1. objectives

One aim of the study is to describe frontrunner initiatives and actions that some of the municipalities in Sweden are taking or participate in to promote a more sustainable fashion consumption. When doing so we consider the municipal departments that initiated the actions, possible collaborating actors, to what extent there were set explicit objectives or targets, and what resources (human, financial, others) were needed, and major lessons learned from these projects.

Such initiatives and actions may include extension of use and lifetime of textiles, information about and requirements on procurement of high-quality goods, information about appropriate care and wash, repair initiatives, encouragement and facilitation for reuse of textiles, separate collection of textile waste, etc. For the initiatives, municipalities may act in the role as enabler, provider, regulator, or as user and consumer.

Another aim of the study is to investigate existing government policies, including those under discussion² related to sustainable fashion consumption that influence or could influence initiatives and actions at municipal level. Moreover, we search to analyze implementation mechanisms and impacts as well as its relationship with national policies in order to contribute the knowledge on how to reinforce factors influencing municipal initiatives on citizen support in sustainable fashion consumption.

2.2. approach

The approach to accomplish the study followed a combination of activities. The first one was review of municipal reports and meta studies on the subject, in particular textile waste, sustainable textile consumption, municipal waste plans, etc. Moreover, representatives for three municipalities (Gothenburg, Lund and Malmö) were interviewed on specific measures they have been active in. The activities of the municipalities were described in relation to a framework to identify different roles municipalities have taken.

The study is based on qualitative information to describe the municipal initiatives and actions, collaborations, etc. that support citizens in more sustainable fashion consumption.

² Policies in this task encompass not only specific policy instruments in place that are related to sustainable fashion consumption by local governments (e.g. requirements related to collection of used clothes, subsidies for initiatives that enhance extended life), but also general policy that sets/guides the direction on the topic (e.g. strategic documents highlighting the importance of reuse of clothes).

A third activity was a review of literature of policy measures and influences, existing and discussed, that can have initiated the activities on sustainable fashion consumption at municipal levels.

The scope of the study is Swedish municipalities. The connotation of sustainable consumption is considerations related to upstream issues such as the need for consumption, manufacturing, and content of hazardous substances, user-phase issues such as quality and durability, reparability, use and care, and indirect prevention of waste and resource efficiency such as fit for reuse and recycling, collection and source separation to divert from waste, etc. Reuse and recycling could indirectly reduce production of virgin textiles.

2.3. conceptual framework for roles of a municipal governance

Governance, rather than government, was a concept suggested by (Bulkeley and Kern 2006) to describe and include more ways a local government, such as a municipality, could be influential. The shift implies a step from not only looking at the formal political decision-making processes to a wider set of modes through which it is possible to achieve desired outcomes, for instance through collaborations, activating networks, use of own resources, etc. Governance represent more non-hierarchical modes of co-ordination, steering and decision-making (Cattacin and Zimmer 2016). Bulkeley and Kern (2006) identified four modes of governance when studying climate change governance in the UK and in Germany: authority, provision, enabling, and self-governing.

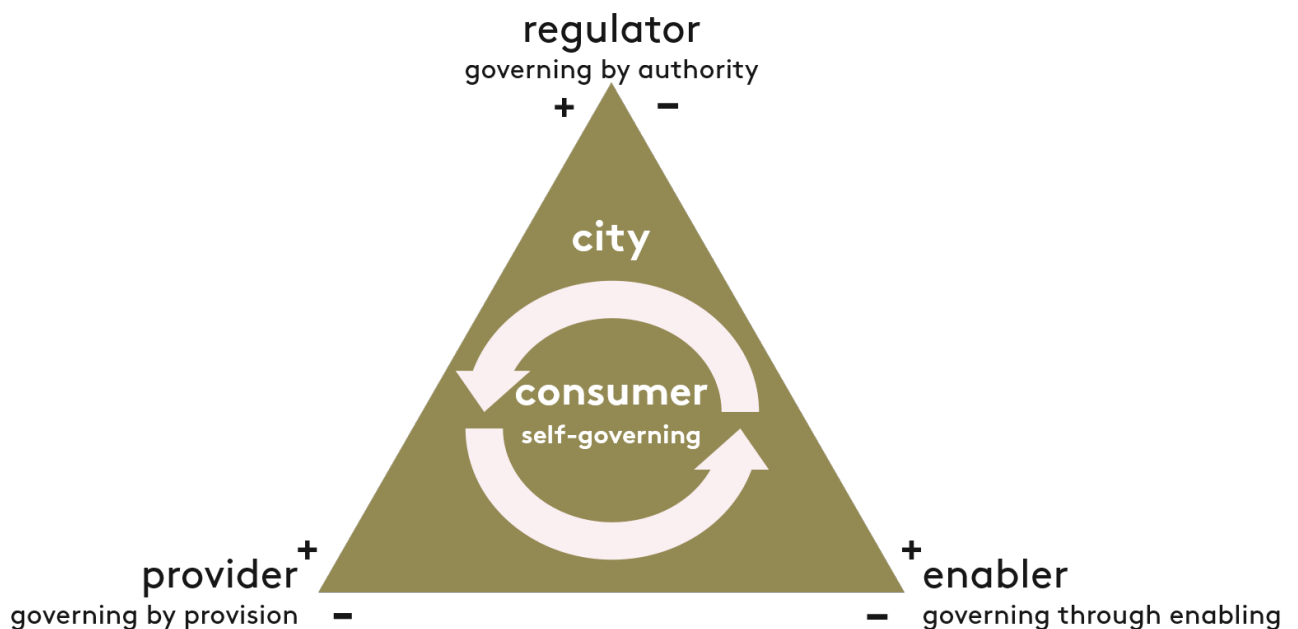


figure 1. Roles and modes of municipal governance (after Bulkeley and Kern 2006; Kern and Alber 2008). Redrawn from: Zvolška et al. 2018

Zvolska et al (2018) have elaborated the model to a framework for studies on sharing cities, which could be viewed as a broader scope. For that purpose, they propose four roles local authorities (e.g. municipalities and city governments) may assume when working with a broad range of issues, either by supporting and promoting or by inhibiting them. According to the framework, a city could act as *regulator*, *provider*, *enabler*, and as *consumer* of goods and services for its own uses (Zvolska et al. 2018). In their work they illustrate the added roles and the modes of governance in the figure below (figure 1), which is elaborated from works by Bulkeley and Kern (2006) and Kern and Alber (2008). The framework proved to be useful for data collection and analysis of city engagement with urban sharing organizations. Due to similarities in the roles and modes between urban sharing and fostering waste prevention and promotion of sustainable consumption behaviors, the framework was chosen as framework for this study. Below follows a short explanation of the roles outlined in Zvolska et al. (2018).

The role of a municipality as a **regulator** is the conventional role of government including a range of regulatory mechanisms including policies and formal documents that regulate establishments and operations of initiatives, laws, taxes, and issuing of permits (Zvolska et al. 2018).

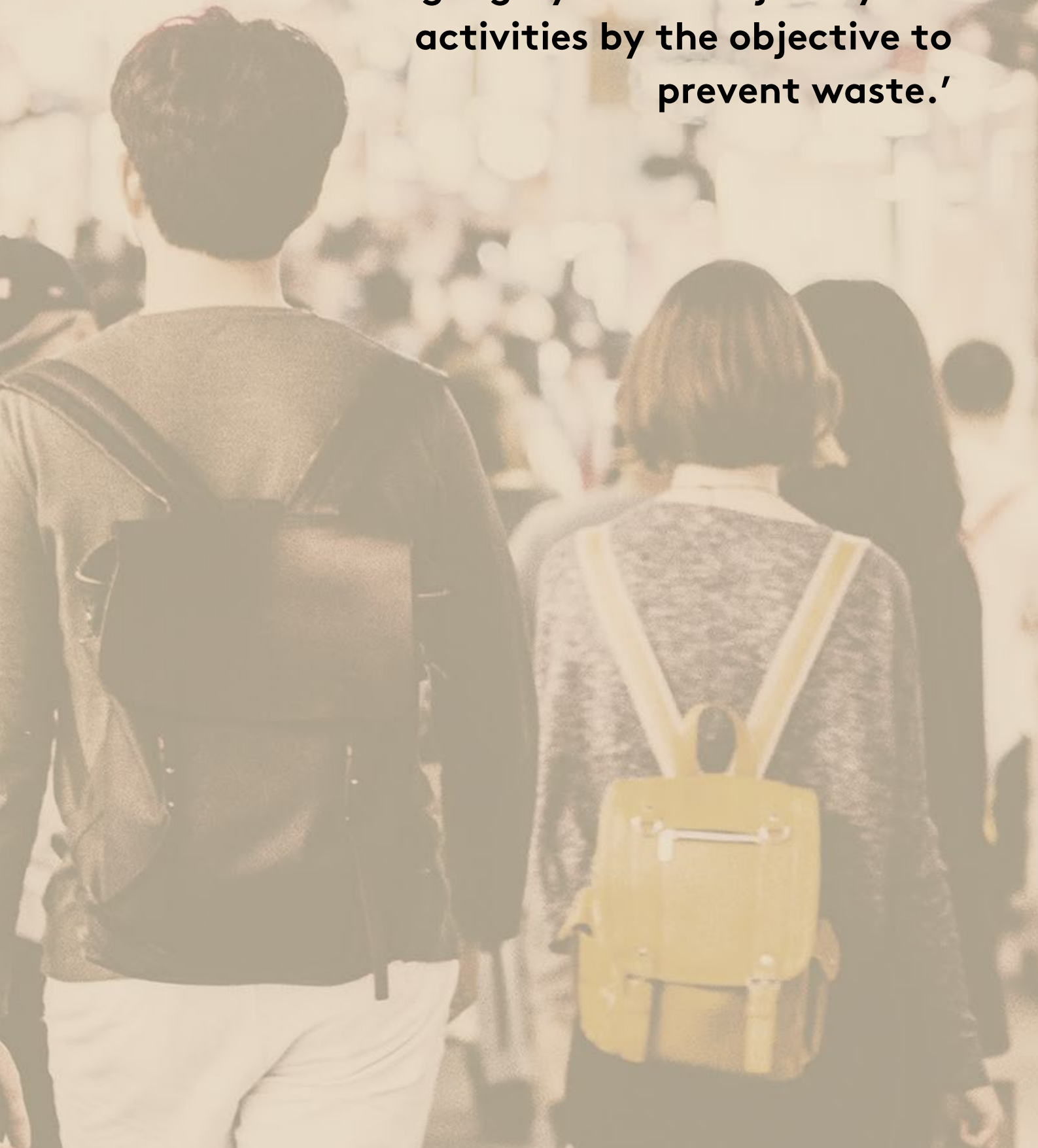
A city could also act as **provider** offering various resources, such as financial support and investments in certain activities. For instance, municipal funding could be used for programs, activities and workshops, technology and infrastructures necessary for the actions, provide staffing, research and development works, education, communication, etc. A municipality could also make its infrastructure available to host and support actors and initiatives. (Zvolska et al. 2018).

When a municipality acts as **enabler**, it is using its network and contacts as matchmaker to facilitate and stimulate new or enhanced forms of collaborations between relevant actors or with the municipality as such in order to accomplishment of the goal. The role may also include partnerships between external and municipal actors in case the municipality choose to be a partner. External communications and dissemination of information, knowledge, good examples and inspiration is also part of being an enabler (Zvolska et al. 2018).

A municipality can take the role as **consumer** to influence through its own procurement and set up buying policies and requirements on its suppliers. Thereby, the municipality both select products suited for its own sustainable textile activities and uses its procurement power to have an impact on the desired objective (Zvolska et al. 2018), which in our case sustainable textile consumption.

A municipality could engage in all these four different roles, it could use its capacity to either promote or inhibit certain activities (Zvolska et al. 2018) in for instance sustainable consumption of textiles. The dual capacity, to either promote or inhibit, can be reflected when there may be conflicting interests between the many different objectives and ambitions of the municipality.

**'municipalities often consider
collected textiles to be in a
legal grey zone but justify the
activities by the objective to
prevent waste.'**



3. literature: policies and initiatives

3.1. early attempts to address clothes and textiles

Clothes and textiles have been collected since long time back either by charity organizations to fund their work in Sweden and abroad or by traditional rag pickers as part of an informal economic sector. Municipalities have not been involved in any substantial way. Contrary to sorting out textiles, municipalities have viewed and managed textiles people want to discard as waste and sent it away for final treatment, which typically was landfilling or more recently incineration.

It is worth to mention that already the EcoCycle Commission back in 1994 had the intention to propose a producer responsibility scheme for textiles in Sweden (Kretsloppsdelegationen 1997). Many of the contemporary arguments of a more sustainable consumption of textiles were voiced back then though with slightly more emphasis on upstream environmental improvements and phasing out of hazardous substances.

3.2. development of sustainable textiles and waste prevention approaches

In the following section, the development of policy proposals, initiatives and discussions are outlined in a chronological order. The survey illustrates the emergence of priorities and certain issues regarding sustainable textiles, which have influenced the development of the current policy landscape. These policies, initiatives and discussions are considered to have stimulated municipalities to in different ways support citizens in sustainable fashion consumption.

A study, commissioned by the Nordic Council of Ministers in 2012 (Tojo et al 2012), had the aim to enhance the concrete knowledge related to textile waste prevention in Denmark, Finland and Sweden. The knowledge should support the development of effective policy measures for the further enhancement of textile waste prevention.

The authors of the report make thorough attempts to quantify textile flows through the societies and describe the fates of discarded products. In the report, it appears as waste prevention was mainly interpreted as diverting textiles from the traditional waste streams, but the authors also emphasized the quality aspect of the generated textile waste in terms of avoiding hazardous substances and mixed materials, which would favor enhanced reuse and recycling.

One finding was that the collection for reuse solely was in the hands of charity non-governmental organizations. They collected in their shops or in containers placed at places around in town centers convenient for people to drop off their used clothes and at recycling centers after agreements with the municipalities. Municipalities had no responsibility to take care of and reuse textiles. The situation was rather the opposite, discarded textiles was legally considered as waste

and should be treated as such, which was a duty of the municipality (Tojo et al 2012). In general, that means it goes to incineration in Sweden.

Moreover, as a parallel trend to the increasing textile consumption, the report mentioned that there was a growing market for reuse of vintage garments and second-hand clothes due to an increasing public interest. Major drivers for the consumers were the opportunity to find unique garments, low prices, and the advantage of a reduced environmental impact (Tojo et al 2012).

For the course of the above-mentioned report, the authors conducted a brief review of policy measures in relation to textile waste prevention that had either been implemented or discussed with a certain attention to extended producer responsibility (EPR). Tojo et al (2012) reported that the review of life cycle assessment studies suggested that the most environmentally significant life cycle phases, and thereby most relevant phases to address with policy interventions, are the upstream production and the user phases.

In addition, the authors reported about studies that pointed out that reuse and recycling of textiles have the potential to reduce the impacts of clothing by influencing the need for production of new fibers and clothes indirectly. The authors cited (Fisher et al. 2011) "Still it is clear that prolonged use and re-use has the potential to reduce important impacts generated in the production phase, at least if this prolonged use/re-use is associated with so-called displacement of the purchase of new products."

The policy interventions addressing prevention of textile waste were presented in two groups: regional and international, and national. The two groups are briefly summarized.

regional and international policy measures

- EU Waste Framework Directive (Directive 2008/98/EC) stressed waste prevention and the waste hierarchy but did not point out textiles per se. (Notice that the EU Waste Framework Directive has been updated and more extensive recently, which is described below).
- EU Waste Shipment Regulation (Regulation (EC) No 1013/2006) addresses issues on movement of waste between Member States of the European Community, and between the European Community and countries outside the European Community. It has requirements on information provision for instance if collected textiles is considered as waste but still will be exported for an intended use in other countries.
- EU REACH regulation (Regulation (EC) No 1907/2006) regulates the chemicals put on the European market. It is relevant for textiles with requirements on chemical content, substitution of hazardous substances, knowledge on hazardous content.
- Stockholm Convention on Persistent Organic Pollutants (POPs) has the aim to reduce negative effects of persistent organic pollutants. Some of those are flame-retardants that should not be present in textiles.
- Labelling schemes including Type 1 ecolabelling of products and services (i.e. EU Ecolabel, the Nordic Swan and the Swedish Good Environmental Choice), raw material textile labels (i.e. GOTS (Global Organic Textile Standards), and absence of specific hazardous substances (i.e. Öko-Tex standard), and many others. These labels help consumers to identify more environmentally benign products.

national policy measures

- In Sweden, Extended Producer Responsibility (EPR) for textiles had been subject for discussion without concrete measures. However, it should be mentioned that different alternative principles for responsibility and collection of textiles were discussed in the proposal by the Swedish Environmental Protection Agency from 2016. Additional measures mentioned that could be considered for an EPR system were labelling requirements, information requirement, and more.
- Green Public Procurement (GPP) was also mentioned as a method to put additional environmental requirements on the production of textiles, requirements on recycling, etc.

As a requirement of the mentioned EU Waste Framework Directive (EU Directive (2008/98/EC)), the Swedish Environmental Protection Agency was assigned by the government to develop the first national waste prevention program, which was presented in 2013 (Naturvårdsverket 2013).

The national waste program pointed out several long-term objectives and measures together with four priority areas of the material streams in the waste. Textiles was one of the prioritized materials justified by climate impacts from production and in general problematic issues concerning hazardous substances both in upstream operations and in the products per se. An additional reason to prioritize textiles was a number of ongoing textile related initiatives in different municipalities that would be further helped by being included in the waste prevention program (Naturvårdsverket 2013).

One section of the waste program proposal outlined waste prevention measures that municipalities and other actors previously had conducted. One such initiative that specifically addressed textiles was a network of actors for promotion of reuse and recycling of clothing and textiles. The network was organized by the University of Borås. Moreover, the report highlighted some good examples on reuse, municipalities that establish recycling parks (and pointed out the Alelyckan recycling park in Gothenburg as a good example), and public campaigns such as European Week for Waste Reduction to illustrate what actors can do (Naturvårdsverket 2013).

suggested initiatives and actions

Here follow a few suggestions about initiatives and actions different actors could undertake in order to support waste prevention. The suggestions that addressed initiatives and actions for municipalities, regions and county councils, and measures that addressed how textile waste could be prevented include:

- Inform households about what to do with their textile waste and the environmental benefits of textile reuse.
- Organize collection systems in collaboration with second-hand actors and place bins for collection of textiles at recycling centers.
- Set up user-friendly textile collection systems convenient for households, for instance by permitting second-hand actors to place collection bins closer to households in waste locations in dwelling houses and ensure a serious handling of the collected textiles by the collecting actors.
- Implement green procurement requirements for textiles purchased for use in own functions, including aspects such as if the textile products can be laundered, re-paired, or material recycled.
- Investigate if there are unused functional textiles held internally prior to purchasing new.
- Investigate the possibilities of reusing or recycling textiles that are no longer in use before they are sent for energy recovery.
- Develop and include objectives and measures for collecting textiles to increase reuse and material recycling in the municipal waste plan (Naturvårdsverket 2013).

3.3. measures for increased textile collection

A study commissioned by Waste Management Sweden in 2013 concluded that there was no established collection of textile waste as separate fraction in Sweden. Thus, the possible actions of a municipal were mainly limited to administrate and appoint collection points for the drop-off containers of the charity organizations (Avfall Sverige 2013).

However, the reports mentioned two pilot projects that collect textile waste not to be resold by charity organizations were initiated at recycling centers in Stockholm in 2012. The projects had the multiple aims of increasing awareness and knowledge among municipalities on how to sort out and recycle textiles from the common household waste flow, and to develop and test systems for textile collection at recycling centers (Avfall Sverige 2013).

The project also carried out pick analyses of waste streams. The result demonstrated that there was plenty of discarded textiles in the waste. It was concluded that the textiles either could be reused or was in sufficiently good condition to have an economic value when recycled. The study suggested that recycling should be organized in collaboration with established actors abroad, since there was no domestic capacity to take care of anticipated volumes from an organized separation of textiles from household waste (Avfall Sverige 2013).

In the report, it was further concluded in the context of collection of worn and ragged textiles that it was new to the citizens. Thus, it is important to communicate about the rationale and function of the collection models when they should be introduced, both to the public and to the staff at the recycling centers (Avfall Sverige 2013).

3.4. governmental assignment: textiles

In 2014, the Swedish government commissioned the Swedish Environmental Protection Agency (SEPA) to develop recommendations on how to make the long-term textile handling in the society more sustainable. The recommendations should lead to extended life-length of textiles, increased reuse, facilitated material recycling, detoxified material loops, and encouraged sustainable production and consumption (Naturvårdsverket 2016).

The recommendations presented to the government in September 2016 included a whole range of measures and collaborations between concerned state agencies, development projects, etc. Moreover, the SEPA proposed concrete targets for the reduction of textile waste, reuse of textiles, and material recycling (Naturvårdsverket 2016).

Information to consumers on sustainable consumption of textiles is an example of themes for collaboration between different agencies, in this case collaboration between SEPA and the Swedish Consumer Agency. The Swedish Consumer Agency has thus initiated a number of information campaigns and published useful information materials under the heading "Hello Consumer" (Hallå Konsument). The information covers issues such as how to think when buying new clothes and home textile in a sustainable way, how to take good care of clothes so that they last longer, correct disposal of clothes and textiles, chemicals in textiles, and environmental considerations regarding different kinds of textiles. The Swedish Environmental Protection Agency provides information on environmental aspects related to textile consumption and on the importance of long lasting garments, and potential recycling.

Furthermore, as part of the development of the national waste plan, SEPA commissioned specific studies of certain topics. One such study from 2013 (Tekie et al. 2013) addressed policy issues and economic analysis. A number of policy measures and influences were scrutinized and discussed for real cases in order to serve as inspiration for others to take action.

relevant policy measures for municipalities

- Prevention of waste as stipulated in the above-mentioned EU Framework Directive has highest priority, thereafter follow reuse and recycling. However, the study concluded that there were no policy instruments leading towards prevention of waste.
- Voluntary textile collection at recycling centers, recycling stations or in the waste rooms of the dwelling houses where households normally drop off their waste. Municipalities could facilitate different levels of convenience for the citizens when it comes to divert textiles from the common waste stream. There is also a need to inform citizens about where and how to separate textiles from waste. A recurrently mentioned obstacle is that recycled fibers are more costly than virgin ones, which was mentioned to hinder an efficient shift from virgin fibers to recycled.
- Education and information to consumers. There will be a need to educate and inform citizens when a new fraction should be separated and collected from the waste stream. Concerning separation textiles, it is a matter explaining the rationale, but also promote purchases of second-hand clothes.
- Leasing, rental and exchange systems for clothes was mentioned to reduce consumption of new textiles. A prerequisite would be a higher quality of the clothes.
- One suggestion brought up a deposit refund system as a potential part of an extended producer responsibility (EPR). According to the suggestion, it could be organized like the voluntary collection methods applied at recycling centers. This policy instrument had not been used for textiles but was analyzed from experiences from beverage containers.
- Repair workshops was mentioned as one measure that could help to prolong the life and use time of clothes and thereby prevent textile waste. The proposal was to stimulate the emergence of or to organize repair workshops.
- Education and training of purchasers was mainly discussing as a means to influence manufacturers to better design and produce textiles. Conscious purchases should influence function, material selection, treatments, etc. (Tekie et al. 2013)

3.5. recent policy development for textiles

Elander, Tojo, Tekie and Hennlock (2017) designed and assessed a detailed Extended Producer Responsibility program for textiles in Sweden, seeking to address both upstream and downstream effects.

The EU Waste Framework Directive (Directive 2008/98/EC) was revised in 2018 in relation to the EU Circular Economy Package from 2015 (EC (2015)). In the revised version of the Directive (Directive (EU) 2018/851), several new requirements related to textiles have been introduced. Member States are required to, for instance, set up systems for promotion of repair and recycling activities, obliged to by 2025 separate textiles from ordinary municipal solid waste. Furthermore, the European Commission has been given the mandate to consider preparing targets for textile reuse and recycling by 2024 (Directive 2008/98/EC). Thus, the new requirements in the revised Directive aim to contribute to closing the material loop for textiles, which only indirectly addresses reduction of environmental impacts of the upstream operations.

Moreover, in the collaboration agreement (Januariavtalet) from January 2019 between four parties of the Swedish Parliament that constitute the foundation of the establishment of a new government after the election in 2018, it is explicitly mentioned that Extended Producer Responsibility will be implemented for textiles. Furthermore, the text establishes that feasible methods for significantly increased reuse and recycling will be tried involving actors from both the textile and non-profit sectors (Januariavtalet 2019).

3.6. summary of policy measures and other initiatives addressing sustainable textiles relevant for municipalities

In this section, we summarize the above-mentioned overview of textile related policy measures relevant for municipalities. The overview suggests that Swedish environmental policy-makers consider sustainable textile consumption as one of the priority areas. The measures and initiatives have either been implemented or discussed as potential next steps.

In general, the instruments are softer in nature pointing out directions and alternatives rather being hard rules requiring specific actors to take specific actions. Many obligations are still responsibilities of the state rather than municipalities. There is rather striven to point out and suggest actions for municipalities and affiliated organizations, collaborations between actors, and involvement of citizens and other organizations.

Finally, the policies address different life cycle stages. In the following section, they are summarized and sorted according to in what life cycle phase they mainly are influential.

Extended Producer Responsibility (EPR) is here discussed separately since the policy measure aims at holistic influences in all life cycle phases. Extended Producer Responsibility system for clothes and textiles would on one hand require municipalities or private actors collect unwanted textile products for reuse and recycling. However, an EPR system, if designed and implemented with due consideration, would also bring additional functions, such as sending feedback to upstream actors (i.e. producers) on how they can make the products more environmentally

benign. While the overall design of an EPR system goes beyond the responsibilities of municipalities, they may play a key role especially if they are tasked with source separation.

3.6.1. upstream influencing policy measures

Ecolabels such as the Nordic Swan, the EU Flower, the Good Environmental Choice, Global Organic Textile Standard (GOTS), etc. are well-established informative policy instruments. The traditional ecolabels take life cycle perspectives, which mean that they typically address upstream issues and when possible the user phase. Others address the raw material phase only. They all serve as guidance for consumers and professional purchasers in more sustainable consumption. They can also fulfil a function as vehicles for information when actors want to communicate the environmental significance of clothes and textiles. Thereby, they can help municipalities and other actors to raise public awareness about environmental issues.

Green Public Procurement of textiles show similarities to ecolabels when it comes to addressing life cycle perspective but focus on public entities' such as municipalities', own purchases. Thus, Green Public Procurement is another application of market instrument that is using the purchasing power to steer the market and product outlet in an environmentally desired direction. Municipalities are urged to consider various environmental aspects when buying textiles. Many of the aspects are the ones often mentioned in sustainable textile consumption, such as, is there a need for a new product or could existing products suffice, are they free from toxic substances, easy to wash, of high quality and durable, or could the textiles be reused or recycled afterwards?

3.6.2. policy measures influencing user phase

Information and campaigns to the public could address citizens both in their capacity of consumers when they are buying textiles as well as careful owners of purchased garments. A lot of information actually appear to advise citizens on how to care for their clothes and home textiles in more sustainable ways. Here we find tips and useful information on how to repair broken or ragged clothes, measures to decrease the need of laundry (i.e. frequently venting them in fresh air, lower washing temperature), but also tips on how to make new clothes and items form old ones. It is often stressed that it is important to provide public information that explain the environmental and social consequences of textiles in order to justify and motivate why people should change their behaviors.

3.6.3. downstream influencing policy measures

The EU Waste Framework Directive influenced a number of activities in policy-making for **waste prevention**. In Sweden, the waste management sector was appointed to serve as the leading part in the work towards prevention of waste.

Public **information campaigns** can address how, where and why clothes and textiles should be left separately in dedicated containers instead of being disposed of as ordinary waste.

Experimentation with different **textile collection systems** for reuse and recycling by establishing collaborations with second-hand actors or recycling companies. A role of municipalities is to prepare for a more ambitious textile collection in the future and thus to evaluate different collection systems. Yet, there is no formal organization that takes care of collected textiles. Municipalities have to rely on different organizations that can find new useful ways to reuse collected items or proper recycling of the material without costs for the municipalities.

Furthermore, municipalities can **enable the second-hand market** in their own textile collection and support efforts to re-sell collected useful clothes.

Finally, municipalities could establish and follow up objectives and targets for textile waste prevention for instance in their own waste plans.

4. case studies in Swedish municipalities

4.1. background: a national picture

In the mapping study commissioned to IVL (IVL 2015) on existing and planned initiatives on textile waste in the Swedish municipalities, interviews were conducted in 60 out of 290 municipalities. The interviewees were chosen to reflect a representative sample of Swedish municipalities. The focus of the investigation was on voluntary collection of used textiles and textile waste, collaboration with charity organizations and others collecting actors, information to citizens on what to do with used textiles and textile waste.

In the study, they found that separate collection of textiles occurred in 59 of the 60 municipalities in the sample. Nine of them organized the collection themselves while the others did it in collaboration with other actors. The collected textiles were sent for either reuse, recycling, or incineration. Mostly, the collaborating actors were charity organizations. However, some collection initiatives occurred through the commercial retail chains. The report mentions that some collaborations were organized as labor market projects (IVL 2015).



About half of the sampled municipalities provide information to citizens on what to do with used textiles and textile waste. The rationale was both the duty of informing on waste and municipalities' own ambitions to strive higher in the waste hierarchy (i.e. reuse and recycling). However, it was reported that most of the municipalities did not have any targets or particular measures addressing textiles in their existing waste plans but considered to do so in coming revisions. One municipality, City of Malmö, had as goal to purchase reusable textiles to set examples (IVL 2015).

Many of the municipalities in the sample mentioned that they have some kind of plans for more advanced collection of textiles in the future. These plans typically regarded a separate textile fraction in parallel with the other fractions that citizens should segregated from the household waste. However, some also mentioned that implementation of concrete plans was set on hold awaiting for national decision on Extended Producer Responsibility and similar measures (IVL 2015).

The Swedish Consumer Agency conducted a study (Konsumentverket 2017) on how Swedish municipalities work on issues related to environmentally smart consumption and households. Thus, the study has a wider scope of sustainable consumption than just textiles. However, one section addressed consumption of goods (i.e. textiles, electronics, furniture, hygiene products) and measures that lead up to substitution of consumption of goods by service solutions, and thereby prevention of household waste.

In the report, there is a connection between sustainable consumption of goods, the concept of circular economy, and phasing out hazardous substances. In addition, there is also a strong connection between circular economy and prevention of waste, which many municipality representatives mentioned as a component of sustainable consumption (Konsumentverket 2017). Beside the focus on waste, the report points out good examples of how municipalities act as enablers and providers of housing for second-hand shopping, repair workshops, information and behavior campaigns on conscious consumption (e.g. sustainable consumption weeks) that also could contain elements of inspiration and practical demonstration (Konsumentverket 2017).

4.2. city of Gothenburg

In the study of how municipalities work to promote sustainable consumption from 2017 (Konsumentverket), it is reported that the City of Gothenburg has prioritized increased resource efficiency in waste management as part of the climate objectives of the city since 2010. The responsibility for waste reduction was placed in the Board for "Circulation and water" (Kretslopp och vatten). Besides supporting the citizens of Gothenburg to fulfil their waste reduction responsibilities, it also has other functions. The work on waste reduction has changed from being a defined project to a continuous process paid by tax money. The city has a goal to reduce waste generation per capita by 30 per cent to 2030 (compared to year 2010) (Konsumentverket 2017).

City of Gothenburg started to offer textile collection at five of its recycling centers in September 2016. The aim was to extend the use-phase of clothes through re-sell in second-hand shops. However, the system was not limited to whole clothes; torn textiles were also accepted in the same containers (Nyström, personal communication).

In a separate textile collection system, the municipality runs a project in collaboration with charity non-profit organizations. In that system, the collection takes place in apartment houses in either their backyards or in connection to their waste areas. Also, in this scheme, both whole and torn clothes and textiles are accepted. The rationale for this kerbside collection is to reduce the problem with space needed for textile collection containers in public spaces and in recycling stations. (Nyström, personal communication)

The non-profit organizations that want to participate in the collection project must, besides demonstrating that they have experiences in textile collection, fulfil certain requirements that prove they are serious actors in the sector. For instance, they must show that the Swedish Fundraising Control has granted them one of their special account numbers (so called 90 number) as proof as a proper fundraising charity organization. Emmaus Björkå, The charity organizations Human Bridge and Myrorna are among those that meet the requirements and conduct the actual collection.

An issue that the project manager mentioned as confusing for the participants was the uncertainty regarding the legal ownership of textiles segregated as non-waste from the waste stream: the fraction could still be seen as household waste and is then a property and responsibility of the municipality to handle. (Nyström, personal communication). The uncertainties regarding ownership of the sorted-out textiles together with the undeveloped infrastructure for handling collected textiles were reasons for the municipality to give the income from textile collection to the collaborating charity organizations that manage the collection. On the other hand, the City of Gothenburg does not subsidize the charity organizations to do the work (Nyström, personal communication). Instead, these charity organizations could sell collected clothes in their second-hand shops or sell recyclable textiles to the established recycling companies operating on the European market.

The rationale for the Circulation and Water Department (Kretslopp och vatten) to take the measures is that they were given the responsibility for reducing the amounts of waste generated

in the city. The City has decided to work in favor of prevention of waste and thereafter increasing reuse and recycling of the products striving towards the higher levels of the waste hierarchy. When it comes to textiles specifically, the city awaits national Swedish decisions if textile collection should be managed by municipalities or by the producers themselves. Meanwhile, the municipality tries to increase the collection rate of textiles for reuse and recycling as much as possible (Nyström, personal communication).

The efforts on textile collection for prevention of waste and increased reuse are organized under the project Circular Gothenburg (Cirkulära Göteborg) which is funded by tax money (Nyström, personal communication).

Emmaus Björkå is one of the charity organization collaborating with the city on collection of textiles. Together with the Circulation and Water Department, Emmaus Björkå introduced the kerb-side textile collection service for private households. Emmaus Björkå collaborated with the charity organizations Myrorna and Human Bridge on this project (Nilsson, personal communication).

The Circulation and Water Department of the city emphasized that all types of textiles, including torn, faded, and not usable, should be collected. Moreover, the collected textiles should be handled for down or upcycling instead of being incinerated. According to the Collection and Sustainability Manager, Emmaus Björkå consider textile collection as a reinforcement of the Swedish national waste plan to reuse and recycle 60 per cent of textiles, and part of working in the direction of implementing the EU Waste Framework Directive (2008/98/EC). Emmaus Björkå's focus is on reuse of the textiles through their sorting facilities and shops. Other clothes and textiles are distributed as aid to various social institutions in the city of Gothenburg, institutions supporting vulnerable people such as EU migrants, homeless people, and refugees (Nilsson, personal communication).

Gothenburg Circulation and Water Department upgraded in 2007 its recycling center Alelyckan. It used to be a conventional recycling center where citizens of Gothenburg could go and drop off bulky waste in defined waste fractions. The new approach was to combine the old function with recovery for reuse and recycling, repair workshops to fix or work up broken products, and second-hand sale. Besides, the site got a food stall for lighter meals, coffee, etc. (Göteborgs Stad 2007).

The core of the upgrade was that visitors first sort out potentially useful items before the remaining material was disposed of as bulky waste. At the sorting section, different organizations take out and if necessary, repair items they can sell in their second-hand shops at the site. Collaborating partners to the city are Stadsmissionen, Returhuset and Återbruket (Göteborgs Stad 2007).

Stadsmissionen is a charity organization selling all kinds of second-hand items in their shop at Alelyckan and in six other shops around the city³. Återbruket sells used building material.⁴ Returhuset is an activity organized by the district administration as a meeting and work place that also offers job training⁵. Returhuset hosts the above-mentioned café and repair workshops (Göteborgs Stad 2007).

The target set by the City of Gothenburg, to decrease the textile consumption and instead extend the use-phase of clothes, influenced the charity organization Erikshjälpen to collaborate in organizing workshops on sustainable clothing (Hansson, personal communication).

Another pilot project in 2016 called Re:challenge had the task to investigate how reuse, sharing products and recycling could be a natural and common element of everyday life of people in Gothenburg. It was a collaboration project between the City of Gothenburg, two real-estate companies, the Swedish Union of Tenants and more than thirty students from various disciplines

³ Stadsmissionen Alelyckan: <https://www.stadsmissionen.org/second-hand/vara-butiker/kretsloppsparken-alelyckan/>

⁴ Återbruket <https://www.facebook.com/aterbruketalelyckan/>

⁵ Returhuset i östra Göteborg <https://goteborg.se/wps/portal/enhetssida/returhuset-ostra-goteborg/>

and universities. The project was initiated by the bridging organization "Miljöbron" (the Environmental Bridge). The outcome was a platform for exploring circular economy in companies, in neighborhoods, and in the society (Miljöbron).

One of the examples available on the online platform is the Smart Map Gothenburg (Smarta kartan Göteborg). It was developed to guide citizens of Gothenburg to businesses and networks where it is possible to rent, share, swap, borrow, lend, give away or receive products, and thereby make sustainable lifestyles easier without buying new things. The map shows for instance places for clothing exchange etc. (Smarta Kartan Göteborg).

The Smart map was the result of collaboration between the association of Collaborative Economy Gothenburg (Kollaborativ Ekonomi Göteborg) and the Gothenburg Administration of Consumer and Civic Service (förvaltningen Konsument- och Medborgarservice) (Smarta Kartan Göteborg).

In addition, the City of Gothenburg participates in sharing economy projects, for instance the Sharing Cities Sweden program. The program is perceived as a facilitating testbed. An organization that is renting out clothes, "Klädoteket" (Klädoteket 2017), has partnered up with the municipality to develop the clothing rental offer as an online service (Sulkakoski 2018).

The business Klädoteket was founded in 2012 and the owners have continually developed the concept for users to borrow/rent their wardrobe. They define the concept as the opposite to fast fashion, which they consider unfair, inhumane and unsustainable. Their answer to that is leasing out vintage and design garments and thereby extend their active use-phase (Klädoteket 2017).

The aim of the City of Gothenburg for the sharing economy test-bed is to boost up the already ongoing work in the sharing economy and to gain more knowledge about how sharing economy contribute to sustainable development and sustainable consumption. There is also a need to evaluate various business models, services in the sharing economy, what effects it brings, and how different groups are affected by them (Sharing City Göteborg).

4.3. Lund municipality

In Lund, the waste prevention work was initiated by the EU Waste Framework Directive (2008/98/EC) and the national waste prevention program developed by the Swedish Environmental Protection Agency. Since the responsibility for prevention of waste landed on the waste sector, the Lund Municipality Waste Management Services took on the work. Prevention of waste was then a new field of activities for them. They started in 2013 with information provision and public campaigns such as "Pathway to future"⁶ (Framtidsstigen) to raise environmental awareness and knowledge among the citizens (Wallin, personal communication).

However, at the waste department, they found out that talking and campaigning was not sufficient. The Communication Manager found it desirable to publicly display to people how they could try the sustainability practices that were mentioned in the information material. This was the origin to the FixaTill (FixIt) project, which should be seen as an experimenting project for such demonstrations of practices. (Wallin, personal communication)

FixaTill was from the beginning a combined second-hand shop, repair workshop, meeting place, and a point for knowledge dissemination dedicated to reuse. The FixaTill premises were located in a neighborhood of Lund. FixaTill was a place where visitors could fix, repair and upgrade products, such as textiles, in a small workshop rather than discarding them as waste. People could also donate clothes and smaller items to the shop and get something else in return. Moreover, FixaTill held lectures and workshops on how to repair things and other issues related

⁶ FramtidNu <https://framtidsstigen.se/>

to more sustainable lifestyles (Konsumentverket 2017). In addition, the place served as a meeting point for people in the neighborhood (Wallin, personal communication).

The main aim of FixaTill was to reduce the waste amounts collected at the recycling centres, and to give collected products new lives (Ingemarsson, personal communication). Additional aims were to increase the knowledge of the citizens of Lund on how to repair and upcycle products, and simultaneously improve well-being among people in the neighborhood.

FixaTill was initiated by the Waste Management Services of the municipality, and organized and financed as a collaboration between them and the municipality owned real-estate company (LKF), which owns most of the buildings in the neighborhood of the facility. Both organizations had waste reduction, resource efficiency and reduced climate and environmental impact as policy, which was in line with the overarching environmental objectives of the municipality (Konsumentverket 2017).

The project was positively perceived since many people visited the shop for swapping or handing in items. A drawback was that inflow of products exceeded what was going out (Konsumentverket 2017). The shop and swap part took lots of time and efforts from the staff that otherwise could have been used for workshops and educational purposes. FixaTill became also an appreciated meeting point and place for workshops (Wallin, personal communication).

The original FixaTill project has been modified and moved its activities to a new neighborhood. It is still a joint project between Lund municipality Waste Management Services and the municipal real-estate company, but the new version includes new collaborating partners in the municipality, non-profit organizations, and social organizations. In the new version, the established second-hand actors take care of the shop and swap activities. The Communication Manager mention that the workshops gain increasing interest and that the main driver for the participants is that they want to do something for the environment, but cost savings and the social aspects are also important (Wallin, personal communication).

In the new version, the Waste Management Services works together with the Cultural and Leisure Services Department of the municipality in arranging new workshops at different locations, which broadens the network of collaborating partners and reinforces the social cohesion aspects. Among the activities, they run sustainability festivals, demonstrate how to repair or change clothes and making new garments from old. The aim is still to demonstrate good examples and ideas so that people get inspired to try themselves. The main task of Waste Management Services department is to contribute with useful products collected at the recycling centers (Wallin, personal communication).

The first location for the FixaTill activities is currently operated by an organization for social inclusion of disabled⁷ together with the municipal real-estate company, which is keen on fostering the social dimension of the project. The new organization maintains the repair workshops and keeps the facility open for other public activities on sustainable lifestyles (Wallin, personal communication).

The Waste Management Services department is, in addition, running collaboration project with the charity organization HumanBridge on collection of textiles separated in the waste rooms of apartment dwellers to be close to peoples' homes. This makes it possible for citizens to conveniently sort out textiles just like other fractions that are segregated. In this project, the Waste Management Services department contributes by establishing contacts between HumanBridge and the housing associations. HumanBridge manages the collection and reports back the statistics to Waste Management Services (Ingemarsson, personal communication).

⁷ Lunds fontänhus <http://lundsfontanhus.se/enheter/fixa-till-linero/>

4.4. Eskilstuna municipality

Eskilstuna Municipality has a good example of how a recycling center has been redefined into a new kind of recycling galleria, a facility promoting reuse, repair, awareness raising, and a social meeting place (Eskilstuna kommun 2019).

The ReTuna facility is a combination of a conventional recycling center for bulky waste and a galleria for shops and other activities dedicated to reuse of products. The galleria opened in 2015 was initiated by "Eskilstuna Energy and Environment" (Eskilstuna Energi & Miljö, EEM), the municipally owned company for energy, water and sewage, and waste management. The EEM company is also the owner of the facility.

The aim of the Eskilstuna municipality when initiating ReTuna was to reduce the amounts of waste. In the report, it is claimed that this has most likely also been achieved although the amounts have not been evaluated and that such evaluations are connected to several methodological challenges on what and how to measure. Furthermore, the mall serves as an example for more environmentally benign and sustainable consumption (Konsumentverket 2017).

People go to Retuna to give away things they do not want before they dispose off the waste part at the nearby recycling center. Staff at site take care of the donated products, judge what is possible to resell or upgrade, and distribute them to the different businesses. Then, staff at the shops decide if they want to take in or not (Retuna 2019).

The EEM company rents out spaces to those who want to establish businesses and activities In ReTuna (ReTuna 2019). The municipality contributed with start-up funding and the activates were subsidised during the first years. Established shops appear to do well and stay in business (Konsumentverket 2017).



figure: Interior of ReTuna Recycling Galleria. Source: Eskilstuna kommun 2019

There are a few businesses dedicated to reuse, repair and upcycling of textiles but also second-hand sale by the charity organization Stockholm City Mission. Besides, there are several shops dealing with other kinds of products, café and restaurant, etc. In total, there is about a dozen shops in the galleria (Eskilstuna kommun 2019).

Beyond being a marketplace, ReTuna aims at public education by organizing different kinds of activities such as lectures, theme-days and workshops on sustainability. Moreover, the Eskilstuna Folk High School has its education in Recycle Design-Reuse in the ReTuna premises (Retuna 2019).

The number of products entering the reuse department is reported to exceed what is sold in the shops of the galleria, which is leading to increasing quality of the products that reach the shops (Konsumentverket 2017).

4.5. city of Malmö

The City of Malmö has conducted several projects fully focused on sustainability and textile and textile collection over the years. Further, the projects focused on sustainable consumption in general included clothes and textiles. Moreover, in line with a strong ambition to work on phasing out hazardous chemicals, there was an unrealized plan to launch a project on chemicals in clothes (Börjesson, personal communication).

The driver for running textile projects in the City of Malmö originate from the Environmental Program of the city for the period 2009 - 2020. The program is divided in four focus areas that constitute the ambitions or priorities of the city. The focus area that sets the objectives for sustainable textile consumption is called "in Malmö, it's easy to do right" (Börjesson, personal communication). The focus area "in Malmö, it's easy to do right" describes sustainable public procurement, phasing out hazardous substances, waste prevention and recycling, sustainable consumption and lifestyles, and Malmö as a city of knowledge and innovation for the cleantech sector (Malmö stad 2009).

Based on the Environmental Program, the political level of Malmö commissioned the officials at the Environment Department to initiate textile specific projects back in 2012 (Börjesson, personal communication).

Many of the project were accomplished in collaboration with other actors, which sometimes took the role as lead parties of the projects. Such partners could be the local waste collection or waste management companies, or different departments within the City of Malmö administration (Konsumentverket 2017).

The Project manager mentioned that sometimes projects could grow organically as they were initiated for one purpose but had for various reasons to be altered during the course of the projects. Malmö has many collaborating partners and it happens that project partners had to be replaced when a project idea was not suitable to realize the one originally intended. She referred to specific mind-sets of different partners that could make some project ideas more obvious for common applications for funding (Börjesson, personal communication).

At present, City of Malmö presents different initiatives dedicated to sustainable fashion (Malmö stad 2019a). The initiatives cover measures such as the project "Go Malmö Stilmedveten" (Go Malmö fashion conscious). The project was dedicated to sustainable textile consumption and followed upon a similar but broader project that included more product groups. The project was an externally funded two-year campaign program conducted by the Environment Department in collaboration with the Swedish Consumers' Association, the waste management company (Sysav), retail, and a charity organization (Börjesson, personal communication, Konsumentverket 2017).

The program covered several aspects of sustainable consumption, such as how to think when purchasing fashion clothes, how to get rid of not wanted textiles, how to take good care of them to prolong their functional lifetime, on swapping clothes with others, and how to reuse the clothes (MyNewsDesk 2016).

Amongst the information material issued by the municipality for the campaign, a green map as the guide to businesses and services for sustainable fashion in Malmö (Malmö stad 2016). It points out where in the city citizens could go to make sustainable choices for clothes (Börjesson, personal communication). The campaign also had some information on what to do with unwanted clothes and where it was possible to leave them for reuse or recycling. (Konsumentverket 2017).

The campaign connected to an exhibition and a series of workshops that reached out to about 3000 participants (Konsumentverket 2017).

Malmö had, as mentioned above, the intention to conduct an information project on hazardous chemicals in clothes and textiles. The intention was however not realized (Börjesson, personal communication). There is, though, an information package on the topic provided on the sustainable fashion web of the city (Malmö Stad 2019b).

In the next project, conducted in September 2017, City of Malmö organized a textile collection campaign (Malmö Stad 2017). The Project manager mentioned that during a short period, citizens could drop off unwanted textiles in bins at their workplaces, in public libraries, in city council building, and more. The campaign also had outreach activities such as morning meetings at workplace, meetings with citizens in a conveniently accessible public meeting space in the town. The campaign had the purposes of raising public awareness about textile collection and recycling. The collected mixed textiles were for another project, SIPTex that aimed at developing an automatic sorting machine for mixed textiles (Konsumentverket 2017, Börjesson 2017).

The SIPTex project is led by IVL the Swedish Environmental Research Institute in collaboration with a group of other research institutes, charity organizations, authorities, textile retailers, and waste management organizations. City of Malmö's Environmental Department, the regional waste management company (SYSAV), which is partly owned by the City of Malmö, and a local waste collection company (VA Syd), which also is partly owned by the City of Malmö, are among the partners (Konsumentverket 2017, IVL 2016, Börjesson 2017).

The Project Manager mentioned that the officials at the Environment Department at the City of Malmö gain experience and get inspiration for new project ideas through the extensive network of partners they are part of. Not least, these partners often bring in EU funded projects, and new thoughts on project ideas (Börjesson, personal communication). External funding is very important to materialize this kind of projects since the basic budget of the City of Malmö is very limited. Thus, applying for funding is part of the mandate and responsibility of the officials when setting up projects like the ones on sustainable textiles (Börjesson, personal communication).

Moreover, the City of Malmö referred to green procurement in the context of promoting circular economy since there are instructions issued by the National Agency for Public Procurement on how to go about (Börjesson, personal communication). For Malmö, applying green public procurement for products aimed for own use, is a way to set an example.

The following sections outline a project called "ReTuren" (The ReTurn), which is different from the above-mentioned projects as it was initiated by the waste sector. The waste sector actors were in this case the above-mentioned waste management company (Sysav) and the waste collection company (VA Syd), which both partly are owned by the City of Malmö. Thus, the companies could be viewed as actors affiliated to the city.

The background to the project was the Waste Management plan of City of Malmö and Burlöv municipality (municipality neighboring Malmö), which states in its first focus area "sustainable consumption for less waste" and there is an explicit target for reduction of textiles as part of mixed waste household waste (Avfallsplan 2016). Consequently, a plan decided by the city and the municipality was the springboard for the two affiliated companies to initiate a project on waste prevention.

For that reason, the waste sector actors set up ReTuren as a neighborhood project in Lindängen, which is a suburb of Malmö (Malmö Stad 2019c). The aim of the project was to combine a traditional but centrally located recycling center located in Lindängen with information dissemination public workshops on how to repair broken items and thus avoid generating waste. There is a workshop with tools and machinery where visitors can practice repairing in the premises (Konsumentverket 2017). This project had in other words a broader focus than just textiles.

Initially, the participating actors were the above-mentioned local waste sector companies only. The project was funded from waste fees and a grant from Vinnova (Sweden's Innovation Agency) (Konsumentverket 2015). The principals involved a range of other actors in reuse, local organizations, neighborhood administration, schools, and libraries.

Later, the project was modified to a meeting point for the neighborhood and new partners such as the city's Department of Culture, real-estate companies, and the National Association for Social and Mental Health took over the responsibility. Thus, the Environment department was not a major part of this project. This could be seen as a shift in focus of the project from environmental towards social sustainability. (Malmö Stad 2019d, Börjesson, personal communication)

The project measured for number of targets and performance indicators but also acknowledged methodological hurdles to measure the actual benefits generated by the project, beside costs and sales in monetary terms (Konsumentverket 2017).

Börjesson mentioned that the City of Malmö and the Environment department is partly detached from the waste prevention and sustainable consumption activities conducted by the waste sector actors. These companies are affiliated to the city of Malmö and other regional municipalities through their ownership, but the City of Malmö has no formal power to influence them (Börjesson, personal communication). Collaboration is then organized on voluntary basis.

**'support from the local
political level is
important for vivid
actions in the long run.'**



5. analysis and discussion

5.1. advanced actions and initiatives

This study has as focus to investigate actions and initiatives that support citizens in sustainable fashion consumption among some municipalities that perform what could be considered as forerunner activities. The focus is in other words on actions and initiatives, not the mentioned municipalities as such. Some other municipalities conduct similar activities and many municipalities are doing less or much less.

From the study, we notice both from the literature and from the case studies that there are many similarities among these forerunner activities. The finding is not surprising since municipalities and other actors learn from each other. There is obviously an exchange of ideas and experience amongst officials in municipalities and related organizations who want to initiate such activities.

Actors in the waste management sector are active in various ways running projects by themselves or in collaboration with other municipal departments and other actors. In Lund is the waste management department a part of the municipal organization.

The waste sector organizations are typically involved in various projects aiming at prevention of waste in wide meaning. A common approach, though, appears to test different systems for sorting out textiles from ordinary household waste either at household level, collection bins on municipal ground, or at recycling centers.

The waste sector actors collaborate with charity organizations that sort, re-sell in own second-hand shops, use in their own social activities, or sell to existing textile recycles since there is no established official path for the handling of collected used textiles.

Sorting out and collect textiles from household waste aim at facilitating reuse and recycling and thus indirectly prevention of textile waste by giving the garments a second life by substituting new products and thereby addressing the volume of consumption. This is the rationale for providing and enabling second-hand market actors. Material recycling could replace virgin raw material and contribute to **resource efficiency and less need for virgin materials**. Moreover, less waste means lower costs for waste management.

Often, the collection activities are combined with initiatives for outreach to the public including information on why and how textiles should be separated, information on textiles and sustainability in general and about environmental aspects of textile production to raise awareness and acceptance for behavioral changes. However, there are also such Initiatives without being connected to a specific textile collection project.

As an extension of information, some municipal actors, often in collaboration with other organizations, arrange practical demonstrations and try-out workshops to inspire citizens to try out and learn about sustainable practices, and eventually change behaviors. The thought behind tend to be that concrete examples from the less tangible information should be exposed.

Another interesting development in the waste sector is the gradual redefinition of traditional recycling centers. They are or used to be places people predominantly use to dispose of bulky waste or products not suited for the household waste bin. In new redefined versions, people can bring all kinds of products (not household waste) they either throw away or bring broken items that may be possible to repair, or just fully functional things they do not want anymore. Potential useful items are sorted out for reuse, repair or recycling. Typically, there are collaborations established between the waste sector and charity organizations that facilitate sorting out and

repair of valuable items, and then sell them in order to raise money for their own aid and charity activities. In the more advanced versions, there are new outlet business activities, cafés and restaurants established at the recycling center where collected items are sold to customers. Together with the repair workshops, cafés and food stalls make these centers more like traditional shopping malls and social meeting points. These redefined recycling centers deal, of course, with most kinds of products and material and not just textiles. It appears, however, that textiles are suitable for the concept and thus part of them.

Other municipal actors could take actions in informing the public, running campaigning projects, conduct awareness rising, provide information on the web, etc. Municipality departments also engage in and often enable or provide means for more practical activities such as repair workshops and demonstrations but then typically in collaboration with other actors such as non-profit organizations that can be responsible for the daily operations, or with housing and real-estate companies, which may prioritize social well-being and neighborhood dimensions of bringing people together. However, workshop activities could be carried out by a municipality department in temporary premises without involving other actors.

The above-mentioned repair workshops are mainly for people who want to learn how to mend or renew their own garments. As indicated, the environmental protection aspect uses to be supplemented with an element of social inclusion and maybe cost saving in such projects. Municipalities could also choose to help commercially repair services during the start-up phase before they get economically viable. They can do so through providing premises at lower rent, participation in projects, promotion on the web, etc.

Commercial clothing libraries allowing many people to rent quality clothes is another emerging business that municipalities could choose to enable or provide similar help as to the above-mentioned repair services.

Finally, we find municipal actors engaged in development projects that typically have other actors as project leaders. One example is the IVL led SIPTex project for the development of automatic textile sorting equipment. The municipality enabled collection and the waste management company provided space and support for the plant.

The municipal activates and initiatives, others than redesigning recycling centers, are often conducted on project-base. They are limited in time and with set budgets. Long-term financed approaches including citizen support in sustainable fashion consumption appears to be conducted by waste sector actors. For others, it was mentioned that external project co-funding is important for realizing more ambitious actions.

It appears that **results** and **impacts** from the projects are sparsely measures. Some declare that they measure and follow-up results in different ways, but it is not clear against what objectives. On the contrary, it appears as most initiatives were set up with only overarching objectives, such as supporting sustainable consumption or reducing waste, but without clear targets. Palm et al (IVL 2015) also mentioned this in their report. However, given the experimental, explorative and project-based character of many of the initiatives, it may be reasonable. Furthermore, it should be acknowledged that many objectives related to supporting sustainable fashion consumption, for instance behavioral changes or changes in consumption, could be difficult to monitor in stringent and cost-efficient ways.

There is a wide interpretation of the contextual content of the concept “sustainable fashion consumption”. Many municipal actors address the **volume and quality of consumption** in different ways with awareness-rising information about negative environmental and social aspects of production. They also provide tips and tricks on what to look for to be able to purchase **long-lasting clothes** free from toxic substances, and how to get existing garments to **last longer** through proper handling, washing and repair. The approaches are in other words aiming at influencing citizens’ behavior. However, municipal actors could also use green public

procurement of textile products for their own uses to influence sustainability aspects. In the background material, we have not found much evidence of such initiatives.

We find municipal initiatives that address how citizens get their garments to **last longer** through supporting repair workshops and teach people how to do it.

Supporting swap shops and clothing libraries aim at reducing the **volume of consumption** when many people share clothes instead of buying their own. Since shared clothes must be of higher quality and professionally handled, is it likely that they also **last longer**.

The social dimension has been mentioned but deserves to be repeated. Some municipal actors responsible for social well-being also provide resources and enable initiatives such as textile repair workshops and connected meeting points for the sake of **integration, cohesion, neighborhood inclusion, well-being, job training**, etc. Often, they do it in collaboration with non-profit organizations with similar interests.

5.2. Drivers and barriers for municipalities to support citizens in sustainable fashion consumption

drivers

- Environmental policy has been encouraging for municipalities to act. However, the push is rather mild since no policies require particular and articulated actions from municipalities to support citizens in sustainable fashion consumption.
- There is an understanding that consumption of textiles causes severe environmental and social burdens in production, use and end-of-life phases. Environmental and social concerns, sometimes expressed in policy documents of the municipalities, justify municipalities to take actions. Engaged officials that are encouraged by the municipal objectives to take initiatives and accomplish projects with objectives in line with what equally concerned citizens are supporting.
- Many textile projects support the work of charity and social non-profit organizations by being economically beneficial while also creating opportunities for job training for people far from the labor market. Their social and human aid projects in neighborhoods or in projects in Sweden or abroad are publicly well regarded.

barriers

- Until recently, there was no requirement to sort out textiles. There has been an ongoing discussion regarding if discarded textiles rather should be regarded as waste and sent to end-of-life treatment, which typically would be incineration. This discussion has contributed to discouraging uncertainties.
- There is no formal path for collected used clothes and textiles. When going for collection projects, it is also necessary to find use or outlet for collected items.
- Since there is no obvious way for municipalities to get rid of sorted out and collected textiles (more than sending them back as waste), it could be costly if charity organizations or commercial recycler refuse to take care of it. This is an uncertainty for the actors.
- The second-hand market for clothes and textiles is still immature and there is still a substantial part of the population that refuse to buy used clothes. Furthermore, the options for economically feasible textile recycling are still under development.
- Not all the textile collectors on the market are serious actors and cause sometimes problems for the municipalities as well as for the serious actors.
- It was also mentioned that there could be conflicting municipal interests between reduced textile consumption encouraged by social and ecological sustainability, and the economic growth, job creation, and vital town centers fashion and home textile shops can add to. Approaches that go against consumption and growth are not always popular among decision-makers.

6. conclusions

In recent years, many Swedish municipalities have been engaged in actions and initiatives to support citizens to more sustainable textile and fashion consumption. One aim of the study is to describe more advances such initiatives, what actors in municipalities, affiliated organizations, and collaboration partners that initiated the actions, what objectives and targets that were set, what resources that were allocated, etc. Another aim is to investigate existing government policies related to sustainable fashion consumption that influence the initiatives and actions at municipal level.

6.1. influential policies

The study from 2015 conducted by IVL Swedish Environmental Research Institute show that most of the Swedish municipalities (given the sample was representative) have some kind of voluntary textile collection and that about half of them inform the citizens on what to do with textile waste (IVL 2015). In the study by Konsumentverket from 2017, it was reported that there were many examples of municipalities actively promote different aspects of sustainable consumption. However, the issues addressed were not specifically related to textiles other than prevention of waste (Konsumentverket 2017). Thus, it should be noted that the drivers influence differently and that municipalities were at different levels in their efforts in supporting citizens in sustainable textile consumption.

Obviously, the EU Framework Directive and the Swedish national waste program together with other works of the Environmental Protection Agency that address textiles have had a strong influence on municipalities and actors of the waste sector owned by municipalities to support citizens to sort out textiles for reuse and recycling, and more sustainable textile consumption.

By putting the responsibility for prevention of waste on the waste sector and addressing the waste hierarchy, the policy measures have activated many actors to build competencies in this new area. The long-standing discussions on implementation of Extended Producer Responsibility, which appear to have reached final decisions, have certainly intensified the actions. Many municipalities allow, enable or even provide resources to textile collection systems of different kinds and promote that citizens participate.

Besides the obvious influence of the idea of prevention of waste illustrated by the EU Framework Directive has had on waste management actors, it is nonetheless possible to single out what European or Swedish policy measures that have influence municipalities to stimulate sustainable textile consumption the most. Rather, it appears like the public debate, successful projects and the combination of policy measures on waste, reuse and recycling, consumption, circular and sharing economies, cause synergies and momentum. Municipalities get inspired and learn from each other.

An observation from the cases is that dedicated and engaged officials in the municipalities take many initiatives, apply for external funding, and look for inspiration in other organizations both in Sweden and abroad. Support from the local political level is important for vivid actions in the long run.

The access to funding for experimental projects may then be of importance for these engaged officials to be able to accomplish projects in their municipalities.

6.2. roles of the municipality

role as provider of resources

In the studies, we find that municipality departments provide resources in a range of ways. Some of the municipal initiatives are temporary project-like activities. Such activities could be conducted by a permanent organization as a way of gearing up its activities as part of larger happenings, temporary campaigns, etc. However, often these projects may need additional funding for temporary staff, logistics, information material, premises for outreach to the target group, running workshops, etc. Municipalities and actors related to municipalities, such as real-estate companies and waste collection entities, provide staff, premises, channels for outreach to citizens, and space on the web sites, etc.

In some cases, municipality departments provide permanent staff that work with public information about sustainable lifestyles in general. They may address clothes and textiles only or make it part of a bigger picture including many other product segments, mobility, etc. Sometimes these officials also work with applications for external co-funding in order to extend their limited budgets. In Malmö, that kind of external contribution is essential (Björnsson, personal communication). Often, the basic municipal funding is enough for project applications and project management.

We notice that actors in waste management are active in projects aiming to prevent waste regardless if they serve as municipal departments under the city councils or act as municipally owned companies. They both support projects directed to information and demonstrations, and larger changes aiming at sorting out products such as textiles from the waste stream to be reused or recycled. Not least, major makeover of recycling centers is paid by such organizations. Alelyckan in Gothenburg and ReTuna in Eskilstuna serve as good examples. The owning organizations not just run the recycling services but also help new businesses in reuse, repair and recycling to establish there. In the ReTuna case, it is paid by tax money. However, waste collectors and waste management companies earn income from waste tariffs and allocate some budget for public information and activities related to waste, including prevention of waste through reuse, repair, and recycling. Moreover, there is at least one example on municipally owned waste management company's support to a development project on textile sorting.

role as enabler

Different department, municipal and even municipal affiliated actors take initiatives for a more sustainable consumption of textiles. Some projects have started with one or a few collaborating actors but later changed to new actors and changed roles for the first ones. We can see examples where projects originally started as handling and repair of textiles in various ways. Such projects could have been initiated by waste sector organizations or environmentally related departments but later on get a stronger focus on community cohesion, social relations in neighborhoods and well-being of citizens. Then municipal departments like culture, leisure or independent associations with that kind of focus take over the principal responsibility.

We find collaborations between municipalities and municipal and private real-estate companies. These projects mainly address textile collection since the companies could have environmental ambitions and common interests with the municipality. Moreover, house owners and real-estate companies want safe neighborhoods and well-being for their tenants and share the enabling role with municipalities.

Municipalities seem to be well positioned to enable new networks of collaboration with external actors, in many cases independent charity organizations, that help the municipalities in working towards the objectives of the textile projects. This kind of collaboration turns out to be common when it comes to collection of used clothes and textiles to be resold in the second-hand shops of these charity organizations or being used in their domestic or international aid projects. Charity organizations help municipalities to divert clothes and textiles from the waste streams, and

thereby decrease the costs of waste treatment for the municipalities, and gain inflows of new material that could generate an income for them. Moreover, charity and social independent associations often help running facilities for repair and upcycling workshops that both contribute to environmental and social sustainability by creating meeting points for people and work for people that otherwise may be far from the labor market. That kind of works could include sorting, package, logistics, displaying, etc. that are created by the new material streams.

Waste departments help charity organizations to partner up with housing associations and real-estate companies for textile collection close to households in apartment buildings.

Moreover, municipalities enable collection of textiles by allowing serious charity organizations to place bins in public spaces or at recycling stations for bulky waste where people can drop off garments they do not want anymore.

It was also mentioned that partnerships and collaborations established in projects for other reasons are used to develop new projects that, for instance could contribute to a more sustainable textile consumption. There are some examples of what could be cross-references when clothing and textile related activities are included in projects on sustainable consumption, circular economy, sharing economy, social inclusion, prevention of waste, and more. The City of Malmö stressed the importance of international collaborations for the generation of new ideas and project proposals.

In general, the municipal activities in waste minimization and sustainable consumption including efforts for clothes and textiles tend to be a wide field of experimentation, trials and test-beds. Municipalities get inspired to launch new projects by looking and learning from each other's good examples.

It is sometime mentioned that enabling of the second-hand market and providing information to the public inspiring them to consume less as one path towards a more sustainable consumption of textiles go against other objectives such as vivid and flourishing businesses and economic growth. It has however not been mentioned as a major hinder for information campaigns and messages to consumers.

role as a regulator

Until now, there were no national specific requirements on fashion consumption or textile waste disposal in Sweden. Most likely, this will change with the revised EU Waste Framework Directive, national and local collection, reuse, and recycling targets and the introduction of Extended Producer Responsibility.

Typically, the municipalities do not regulate either but run their projects in a way that make participation voluntary for the citizens. Projects on textile collection have sometimes pointed out a challenge to distinguish collected textiles from waste. The legal definition of waste could be interpreted in a way that collected textiles should be handled by municipalities and not charity organizations and recycling companies. It seems like municipalities consider collected textiles to be in a legal grey zone but justify the activities by the objective to prevent waste.

Environmental and waste plans of the municipalities as well as support from the political level can be encouraging for departments and officials to organize projects aiming at promotion of sustainable textile consumption. Some such plans, in particular municipal waste plans, appear to be influenced by the EU Waste Framework Directive and national ambitions to climb the ladder of the waste hierarchy. Other plans, such as the environmental plan of Malmö, could be based on local ways to describe sustainability priorities. However, that kind of written and emphasized policies and objectives, together with a will at the political level of the municipalities, appear to be important as they legitimize initiatives in project applications and collaborations with other actors.

Municipalities put some kind of requirements on the charity organizations they choose as partners in textile collection projects.

role as consumer and user

Green public procurement is a measure recurrently mentioned as a way to influence the market and market actors in a desired way. From the study, it turns out that own procurement rarely is used to set example for the citizens, influence the textile consumption, and reuse of textile products. In this study, we got one such example. The National Agency for Public Procurement supports local initiatives and provides green purchase criteria and guidance for public entities that want to include environmental and circular economy requirements in their procurement.

7. recommendations

We direct our recommendations to the political level and to officials in municipalities, and to national policy-makers.

recommendations to municipalities

political level

- Provide resources to follow the development of national policies and requirements in order to be prepared to meet them. Both Extended Producer Responsibility and targets for textile collection is underway and will most likely influence the work of municipalities.
- The negative environmental and social aspects of textile consumption are well known, recognized and prioritized on national level. It is reasonable to support activities addressing sustainable textile consumption, use and recycling. Thus, explicitly describe and include sustainable textile consumption as an objective in regulating written policy documents. Encourage and back up approaches that lead towards the objective.
- Promote the Green Public Procurement criteria of the National Agency for Public Procurement on the municipal purchases of clothes and textiles for own use, both as example for private consumers and to meet the objectives in the above-mentioned policy documents.
- Adopt forthcoming new national goals and targets for textile collection, reuse, and recycling and apply harmonized standard methods for monitoring and reporting fulfilment as a requirement.

officials

- Support and encourage further experimentation by enable and provide resources to actions to support the public in all aspects of sustainable fashion consumption. Consider objectives and targets from start in order to design sensible evaluation methods.
- Follow the development of upcoming policies and requirements for textile collection to design suitable municipal approaches or knowledge building projects.
- Keep looking for and share good examples as inspiring enablers for new projects and approaches.

recommendations to national policy makers

- Clarify the legal status of collected textiles in order to avoid unnecessary uncertainties and confusion among municipality actors.
- Adopt national goals and targets for textile collection, reuse, and recycling. Develop corresponding standard methods for the measurement of target fulfilment and support municipalities in the implementation of them.
- Elaborate the roles of municipalities and other relevant actors under the extended producer responsibility.
- Support sustainable textile consumption and acknowledge that there could be a contraposition between the desire of economic growth and sustainable consumption. Consider the opportunities of the circular economy to create jobs and new businesses in the various sustainable fashion approaches. There are positive experiences in some of the examples given in this report.
- Provide external funding for projects in municipalities on sustainable textile consumption. Follow up results and outcomes in order to build a stock of good examples to disseminate amongst the Swedish municipalities. Keep track of activities and approaches in the municipalities in order to avoid a too big a distance between the forerunners and laggards when it comes to citizen support in sustainable fashion consumption.

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Mistra Future Fashion is a research program that focuses on how to turn today's fashion industry and consumer habits toward sustainable fashion and behavior. Guided by the principles of the circular economy model, the program operates cross disciplinary and involves 60+ partners from the fashion ecosystem. Its unique system perspective combines new methods for design, production, use and recycling with relevant aspects such as new business models, policies, consumer science, life-cycle-assessments, system analysis, chemistry, engineering etc.

MISTRA is the initiator and primary funder covering the years 2011-2019. It is hosted by RISE Research Institutes of Sweden in collaboration with 15 research partners.

FUNDED BY



The Swedish Foundation for
Strategic Environmental Research

