


Towards a new Nordic textile commitment

Collection, sorting, reuse and recycling



**Nordic textile
reuse and recycling
commitment**



Towards a new Nordic textile commitment

Collection, sorting, reuse and recycling

*David Palm, Maria Elander, David Watson, Nikola Kiørboe,
Kari-Anne Lyng and Stefán Gíslason*



Towards a new Nordic textile commitment
Collection, sorting, reuse and recycling

David Palm, Maria Elander, David Watson, Nikola Kiørboe, Kari-Anne Lyng and Stefán Gíslason

ISBN 978-92-893-2798-5

ISBN 978-92-893-2799-2 (EPUB)

<http://dx.doi.org/10.6027/TN2014-540>

TemaNord 2014:540

ISSN 0908-6692

© Nordic Council of Ministers 2014

Layout: Hanne Lebech

Cover photo: Helena Davidsson



This publication has been published with financial support by the Nordic Council of Ministers. However, the contents of this publication do not necessarily reflect the views, policies or recommendations of the Nordic Council of Ministers.

www.norden.org/en/publications

Nordic co-operation

Nordic co-operation is one of the world's most extensive forms of regional collaboration, involving Denmark, Finland, Iceland, Norway, Sweden, and the Faroe Islands, Greenland, and Åland.

Nordic co-operation has firm traditions in politics, the economy, and culture. It plays an important role in European and international collaboration, and aims at creating a strong Nordic community in a strong Europe.

Nordic co-operation seeks to safeguard Nordic and regional interests and principles in the global community. Common Nordic values help the region solidify its position as one of the world's most innovative and competitive.

Nordic Council of Ministers

Ved Stranden 18
DK-1061 Copenhagen K
Phone (+45) 3396 0200

www.norden.org

Content

The Nordic reuse and recycling commitment.....	9
Key messages.....	11
1. Introduction.....	13
1.1 Background.....	13
1.2 The project.....	14
1.3 Summary of the reports.....	15
2. Sammanfattning av rapporterna.....	21
Mapping of current actors in the collection, sorting, reuse and recycling of used textiles and the management of textile wastes.....	27
1. Introduction and aim.....	29
2. Scope and definition of actors.....	31
3. Key actors in Denmark.....	33
3.1 Broad estimates of the flow of textiles.....	33
3.2 Details on the roles.....	34
4. Key actors in Finland.....	43
4.1 Broad estimates of the flow of textiles.....	43
4.2 Detail on the roles.....	44
5. Key actors in Iceland.....	51
5.1 Broad estimates of the flow of textiles.....	51
5.2 Detail on the role.....	52
6. Key actors in Norway.....	55
6.1 Broad estimates of the flow of textiles.....	55
6.2 Detail on the roles.....	56
7. Key actors in Sweden.....	59
7.1 Broad estimates of the flow of textiles.....	59
7.2 Detail on the roles.....	60
8. Comparison of roles and conditions in the Nordic region.....	65
8.1 Key actors and their roles.....	65
8.2 Conditions for operation.....	67
8.3 Discussion.....	67
9. References.....	69
Literature review of the traceability of global textile flows.....	73
1. Introduction.....	75
1.1 Background.....	75
1.2 Objective.....	77

2.	General overview of global textile flows.....	79
2.1	Global trade flows of textiles and textile products.....	79
2.2	Global trade flows of used textiles and used textile products.....	82
2.3	Global markets for recycling of used textiles	83
3.	The Nordic market for textile, used textiles and textile waste for recycling	85
3.1	Actors and principal material flows on the Nordic market for used textiles.....	85
3.2	Textile flows to and from the Nordic region.....	87
4.	Information and traceability	89
4.1	Data and trade flows of new textiles	89
4.2	Data and trade flows of used textiles.....	90
4.3	Consequences of lacking information.....	93
4.4	Possibilities for increasing creation/collection of data.....	95
5.	References.....	99

	Definition and documentation of operational and best practice standards in the collection, sorting, reuse and recycling of used textiles and the management of textile wastes	101
--	---	-----

	Glossary.....	103
--	---------------	-----

1.	Introduction.....	105
2.	Lacking credibility as obstacle to the increased collection of used textiles	107
2.1	Issues regarding the handling of the collected used textiles.....	107
2.2	Operational issues regarding the collection of used textiles.....	108
2.3	Moral and social issues regarding the profits made by the collected used textiles.....	108
2.4	General aspects (not necessarily typical for the used textiles sector).....	108
3.	Different types of initiatives for improved environmental and social performance in the handling of used textiles.....	109
3.1	Regulatory requirements	109
3.2	Standards and certification.....	109
3.3	Voluntary agreements and initiatives.....	110
4.	Examples of regulatory requirements	111
4.1	Extended Producer Responsibility for clothing, linen and footwear (France)	111
4.2	Swedish Fundraising Control's requirements on charitable organisations (Sweden)	114
5.	Examples of standards and certification schemes for textiles	115
5.1	Global Recycle Standard (international).....	115
5.2	R Cert by Redress (international)	117
5.3	Draft Re-use Standard (UK).....	118
5.4	Specification of the UK Textile Recycling Association for textiles derived from charity shops (UK)	119
5.5	British Standard 7033-2 for cleaning and polishing cloths derived from used textiles (UK)	121
5.6	Beoordelingsgrondslag Gecertificeerd Textielsorteerproces by TÜV Rheinland (Belgium, Germany and the Netherlands)	122

6.	Examples of standards and certification schemes for other products	125
6.1	Introduction to PAS Standards (UK).....	125
6.2	PAS 141 on electrical and electronic equipment (UK).....	126
6.3	PAS 105 Code of practice on collection and recycling of paper (UK)	128
7.	Examples of voluntary initiatives	131
7.1	bvse Quality Label for Textile Recycling (Germany and Europe)	131
7.2	TRA Code of Practice for collectors of used textiles (UK)	133
7.3	Donation Drop Box Operator Code of Conduct by SMART (international)	135
7.4	Boer Group (Belgium, Germany and the Netherlands).....	136
7.5	Wieland Textiles (The Netherlands)	137
7.6	Development of sub targets for improving handling of used textiles by Ideell Second Hand (Sweden)	138
7.7	Human Bridge's experiences with developing guidelines for collection and handling of used textiles and shoes (Sweden)	139
7.8	Policy for clothes, textiles and other donations by the Swedish Red Cross (Sweden)	141
7.9	Myrorna and Fretex Code of Conduct for clients purchasing used goods (Sweden and Norway)	142
7.10	Bra Miljöval [Good environmental choice] (Sweden)	144
7.11	Textiles for Recycling Initiative (T4RI) (Sweden)	146
7.12	H&M and the I Collect scheme (international)	147
7.13	Swapstories by Haglöfs (Sweden)	150
8.	Synthesis of requirements in the identified examples	153
8.1	General legal requirements (including priority for reuse).....	153
8.2	Requirements on traceability, transparency and documentation of material flows (including exports).....	154
8.3	Requirements regarding use of profits and traceability of revenues.....	155
8.4	Requirements regarding collection of used textiles	156
8.5	Requirements regarding sorting of used textiles.....	157
8.6	Requirements regarding recycling of used textiles.....	158
8.7	Requirements regarding disposal of used textiles not suitable for reuse and recycling.....	158
9.	Lessons learned and conclusions.....	159
9.1	Looking at the entire value chain.....	160
9.2	Common ground and acceptance as prerequisite for proper implementation.....	160
9.3	The wide range of actors calls for a practical approach	161
9.4	Control and sanctions are central for successful implementation	162
10.	References.....	163
Comparison with waste management of other waste streams		167
1.	Introduction.....	169
2.	Success criteria for a waste management system.....	171
2.1	Cost and motivation.....	171
2.2	Market conditions.....	172

3. Description and evaluation of waste management systems.....	173
3.1 Kerbside collection	173
3.2 Bring systems: containers/recycling stations.....	173
3.3 Bring system: retailers	174
3.4 Deposit scheme systems.....	175
4. Conclusions and recommendations.....	177
5. References.....	179

The Nordic reuse and recycling commitment

*By David Palm, Maria Elander, David Watson, Nikola Kiørboe,
Kari-Anne Lyng and Stefán Gíslason*

Key messages

The consumption of new textiles in the Nordic countries is about 14 kg per capita. Of the 4.5 kg used textiles collected separately about 2.5 kg are exported, but with unknown end use. Roughly 9 kg goes to waste treatment in the mixed waste every year of which most could have been reused or recycled.

In all Nordic countries charities are dominant in collection and, with the exception of Denmark; a few large collectors dominate the market. This may however be changing since large European actors are entering the Nordic market.

The regulation around collection is unclear in all Nordic countries which allows for grey and illegal actors to operate which in turn affects the public's confidence in textile collection. There is a need for action on cracking down on questionable collection.

The implementation of the planned code of conduct must be properly controlled in order to be effective. The current situation reveals a lack of enforcement (e.g. if textile containers are set up illegally or marked with ambiguous labels and logos). Sanctions for malpractice or even illegal activities are rarely enforced. There is a need for a strong Nordic actor to operate third party control over a proposed code of conduct.

One of the big challenges with implementation of voluntary commitment and a code of conduct along the entire value chain is to go beyond signing an agreement to adjust (and sometimes change) companies' and organisations' business models.

There are three crucial factors that must be considered when implementing a new textile collection, reuse and recycling system:

- Market.
- Purity (correct sorting).
- Consumer satisfaction.

It is important to build on what is already in place in the Nordic region not to risk losing any of these factors. When establishing a new system, patience is necessary and both time and subsidies may be required for a period of time.

The key messages and findings presented in this report are part of the Nordic Prime Ministers' overall green growth initiative, *The Nordic Region – leading in green growth*. Read more about the initiative in the web magazine *Green Growth the Nordic Way* at www.nordicway.org, or at www.norden.org/greengrowth

1. Introduction

1.1 Background

In recent years textile production and consumption have risen drastically in the Nordic region. In Sweden the increase was 40% during the last 10 years and now amounts to 15 kg per capita, including clothes and home textiles only. In Norway the consumption is 24 kg per capita. Most used textiles either end up in the back of the wardrobe, or in an incinerator, while only a small fraction is reused and recycled.

The Nordic reuse and recycling commitment is part of the Nordic Prime Ministers' Green Growth initiative, The Nordic Region – leading in green growth. The initiative identifies eight priorities aimed at greening the Nordic economies, one of which is to develop innovative technologies and methods for waste treatment.

To realise the Prime Ministers' vision, the Nordic Waste Group (NWG) launched an initiative titled Resource Efficient Recycling of Plastic and Textile Waste, comprising of six projects aimed at identifying ways in which the reuse and recycling of plastic and textile waste can be increased.

The Nordic reuse and recycling commitment is one of three projects to increase the reuse and recycling of textiles in the Nordic region. The other two are: *A Nordic strategy for collection, sorting, reuse and recycling of textiles* and *An extended producer responsibility (EPR) system and new business models to increase reuse and recycling of textiles in the Nordic region*.

Reuse and recycling of textiles is performed mostly by charities in order to raise money for social work and similar activities. There are no specific regulations related to textile waste. Although the charities are creating value out of used textiles on a voluntary basis, there is a need for a common standard to increase the levels of reuse and high-grade recycling.

A third party guaranteed level of quality can enable producers and importers as well as municipalities to engage in the collection, reuse and recycling of textiles; increasing the amount of textiles collected, reused and recycled. A professional market can provide collection, reuse and recycling infrastructure through cooperation between legitimate actors while hindering non-legitimate actors from entering the market. This

would also make it easier for the consumer to make the right choice when disposing of textiles.

The aim of the project as stated in the tender from the Nordic waste group:

[...] to develop a common quality requirement system for textile collection, reuse and recycling companies based on a voluntary commitment system organized by a Nordic body or by national bodies [...].

(Tender published by the Nordic waste group, April 2013)

1.2 The project

The project is carried out by a consortium with IVL Swedish Environmental Research Institute (Sweden), Copenhagen Resource Institute (Denmark), Ostfold Research (Norway) and Environice (Iceland). David Palm at IVL acts as project manager.

The work is performed in close connection with the Nordic waste group and Coordinator Yvonne Augustsson and also has a reference group connected to the project to ensure the outcome of the project. Related to this project are also two Nordic workshops organized by the Sustainable Fashion Academy on behalf of the Nordic Council of ministers.

The project runs from June 2013 to December 2014.

The reference group members are:

- Arnt-Willy Hjelle, Fretex, Norway.
- Cecilia Brännsten, H&M, Sweden.
- Elisabeth Dahlin, Swedish Red Cross, Sweden.
- Emma Enebog, Myrorna, Sweden.
- Erik Hove, Danish Red Cross, Denmark.
- Frode Syversen, Mepex, Norway.
- Helene Personne, City of Stockholm, Sweden.
- Inge Werther, Dakofa, Denmark.
- Jesper Rønn-Simonsen, Kirkens Korshaer, Denmark.
- Jon Nilsson-Djerf, Waste Management Sweden, Sweden.
- Kaj Pihl, UFF Denmark, Denmark.
- Karin Sundin, Independent, Sweden.
- Klaus Rosinski, HumanBridge, Sweden.
- Minja Huopalainen, UFF Finland, Finland.
- Sara Winroth, Lindex, Sweden.
- Stina Moberg, City of Gothenburg, Sweden.

Some organisations have been represented also by other colleagues for part of the work.

1.3 Summary of the reports

This report is the primary outcome from Part I of the project “Towards a new Nordic textile commitment - Collection, sorting, reuse and recycling” initiated by the Nordic Waste Group (NAG). The report for Part 2 will be published in December 2014.

This report summarizes the work from the first year of the project and its four subreports covering various parts of the issue as basis for the work to be performed in 2014.

The reports for 2013 are:

- Mapping of current actors in the collection, sorting, reuse and recycling of used textiles and the management of textile wastes.
- Literature review of the traceability of global textile flows.
- Definition and documentation of operational and best practice standards in the collection, sorting, reuse and recycling of used textiles and the management of textile wastes.
- Comparison with waste management of other waste streams.

The findings presented in the four reports are part of the Nordic Prime Ministers’ overall green growth initiative: *The Nordic Region – leading in green growth*. Read more in the web magazine *Green Growth the Nordic Way* at www.nordicway.org or at www.norden.org/greengrowth

1.3.1 Mapping of current actors in the collection, sorting, reuse and recycling of used textiles and the management of textile wastes

The first report gives an overview of the different actors involved in the collection, sorting, reuse and recycling of used textiles in the Nordic region. It also includes estimates of amount handled by these actors and their condition of operation.

In all Nordic countries charities are dominant in collection and, with the exception of Denmark, a few large collectors dominate the market. This may however be changing since large European actors only recently started operations in the Nordic region. A substantial part of textiles are

exported for sorting in Europe and further export to Eastern Europe and parts of Africa.

Most municipalities cooperate in some way with the charities, such as allowing collection on public land, and only a few operate collection themselves. The regulation around collection is unclear in all Nordic countries which allows for grey and illegal actors to operate which in turn affects the public's confidence in textile collection.

Main conclusions

- Charities are dominant in collection of textiles for reuse and have an advantage in that they are exempt from paying VAT and in some countries enjoy preferential treatment in terms of gaining permission to set up containers on public land or at municipal recycling centres.
- International private collectors (such as I:CO) are becoming increasingly important actors via cooperation with high street brands.
- Textiles which are separately collected in the Nordic countries appear to be handled to a certain extent according to the waste hierarchy. This is because of the pricing of used textiles.
- More than half (54–80%) of used textiles in all countries end in mixed municipal waste streams and are thereafter incinerated or landfilled.

1.3.2 Literature review of the traceability of global textile flows

The second report covers issues of what is known and unknown of global textile flows related to the Nordic textile consumption.

The production and import of textiles to the Nordic region is about 21 kg per capita of which 7.5 kg are exported as new textiles. Production of new textiles is less than 1 kg per capita. The consumption of new textiles is about 14 kg per capita. Of the 4.5 kg used textiles collected separately about 2.5 kg are exported, but with unknown use. Roughly 9 kg goes to waste treatment in the mixed waste every year.

There is very little knowledge on the accumulation of textiles in the households and the levels of private reuse. Levels of export of sorted and unsorted textiles for reuse, recycling and waste management are all blindspots except for the combined figure.

The consequences of lacking data is mainly that it is difficult to set targets for reuse and recycling if it is not possible to follow up what actually happens to collected textile. Better coordination between actors could also reduce the levels of textile going to incineration and landfill

out of habit. Lack of traceability and transparency also makes it difficult to build the public confidence in the collection of used textiles.

Main conclusions

- Consumption of new textiles is about 14 kg per capita in the Nordic countries every year.
- 80% of the new textiles imported to the EU-27 comes from Asia, from China and India in particular.
- The share of second hand clothing in the global market is still small but has almost doubled in value since 2007. In some sub-saharan countries second hand clothing represent more than 30% of imported clothing.
- Mixed fractions with textiles for reuse and for recycling and textiles for recycling are generally sold for more differentiated sorting and subsequent reuse and recycling outside the Nordic market.
- Although there are no requirements to report on these data, collection, re-use and recycling of used textiles within the Nordic region is fairly well estimated, but there is little knowledge on the actual amounts of reused and recycled textiles exported from the Nordic region.

1.3.3 *Definition and documentation of operational and best practice standards in the collection, sorting, reuse and recycling of used textiles and the management of textile wastes*

The third report provides a comprehensive view of current standards, regulations, certifications and voluntary initiatives with a focus on best practice.

Several actors have stressed the importance of going “beyond collection” in order to effectively impact customers and markets. This includes markets and stakeholders outside of the Nordic countries. The proposed code of conduct should therefore not be limited to collection and subsequent handling of used textiles in the Nordic countries, but also include the handling of exported textiles.

One of the big challenges with implementation of a code of conduct along the entire value chain is to go beyond signing an agreement to adjust (and sometimes change) companies’ and organisations’ business models.

The wide range of actors considered for the code of conduct (yet to be proposed) calls for a practical approach. As an example: a small second hand shop has very different possibilities and pre-conditions of acting than organisations collecting large amount of used textiles. It is important to develop a practical code of practice that is possible to live (for all actors) in order to get all actors “on board”.

The implementation of the planned code of conduct must be properly controlled in order to be effective. The current situation reveals a lack of enforcement (e.g. if textile containers are set up illegally or marked with ambiguous labels and logos). Sanctions for malpractice or even illegal activities are rarely enforced.

Main conclusions

- Most of the current standards stress the importance of proper implementation of the waste hierarchy with a clear priority for reuse.
- A key element for a code of conduct is documentation of quantities of textiles and their source and final destination (be it collection or import or reuse and export).
- One of the central incentives for consumer to donate textiles is giving something to charity. Therefore is it crucial that it is clear what the purpose of the collection is, how much of the revenue that goes to charity (may be zero) and documentation supporting these statements. It should also be clear for the consumer who is conducting the collection.
- Collectors should accept all used textiles than does not run the risk of contaminating other textiles, i.e. torn textiles should be included.
- Sorting should be performed by professionals with regard to reuse and recycling and 70–90% of collected textiles should be either reused or recycled.
- Control and sanctions are critical for a successful code of conduct and third party assurance is needed.

1.3.4 Comparison with waste management of other waste streams

The fourth report is a short collation of success criteria for collection systems of waste in general with pros and cons of different solutions.

When establishing a new system, patience is necessary and both time and subsidies may be required. According to WRAP (2009) the amount of space at the collection point and the frequency has influence on the

amounts collected. Information to consumers about both how and why is also a key element.

When it comes to finding Nordic systems and solutions it is important to have in mind that what works in one country or area, may not work in another. There may not be one solution that fit all regions and the systems must be adapted to local systems and government.

Main conclusions

There are three crucial factors that must be considered when choosing a waste management system:

- Market.
- Purity (correct sorting).
- Consumer satisfaction.

For the commitment to be successful, it is important that current systems are built upon to ensure that the three main factors are not lost. Collection, reuse and recycling will not function if there are no second hand and recycling markets. The purity of collected textiles and consumer satisfaction are of equal importance since collection depends both on an action by the consumer and that it is a correct action.

2. Sammanfattning av rapporterna

Denna rapport sammanfattar arbetet från projektets första år och dess tre delrapporter som tillsammans ger ett underlag för 2014 års arbete. Rapport för Del 2 kommer att publiceras när projektet är klart i december 2014.

2013 års rapporter är:

- Kartläggning av aktörer för insamling, sortering, återanvändning och återvinning av använda textilier och hanteringen av textilavfall.
- Litteraturgenomgång av spårbarheten av globala textilflöden.
- Definition och dokumentation av operativa och best practice inom insamling, sortering, återanvändning och återvinning av använda textilier och hantering av textilavfall.
- Jämförelse med avfallshantering av andra avfallsflöden.

Rapporternas resultat är en del av de nordiska statsministrarnas grön tillväxt initiativ, Norden – ledande i grön tillväxt. Läs mer i nättidningen Grön tillväxt i Norden Way of www.nordicway.org eller www.norden.org/greengrowth

2.1.1 Kartläggning av nuvarande aktörer för insamling, sortering, återanvändning och återvinning av använda textilier och hanteringen av textilavfall

Den första rapporten ger en översikt av de olika aktörer som deltar i insamling, sortering, återanvändning och återvinning av använd textil i Norden. Den innehåller också uppskattningar av mängden textil som hanteras av dessa aktörer och den omvärld de agerar i samtliga nordiska länder dominerar välgörenhetsorganisationer insamlingen av textil och med undantag av Danmark, är det ett fåtal stora insamlare som dominerar marknaden. Detta håller möjligen på att förändras, eftersom stora europeiska aktörer först nyligen startat verksamheter i Norden. En betydande del av textilen exporteras för sortering i Europa och vidare för export till Östeuropa och delar av Afrika.

De flesta kommunerar samarbetar på något sätt med välgörenhetsorganisationer, till exempel genom att tillåta insamling på allmän mark, och endast ett fåtal sköter insamlingen själva. Regelverket kring insamling av textil är oklar i alla nordiska länder, vilket möjliggör att illegala aktörer kan verka på marknaden, vilket i sin tur påverkar allmänhetens förtroende för textilinsamling.

Slutsatser

- Välgörenhetsorganisationer dominerar insamlingen av textil för återanvändning och har en fördel i att de är befriande från att betala moms och i vissa länder även har ensamrätt när det gäller tillstånd att ställa upp containrar på allmän mark eller på kommunernas återvinningscentraler.
- Internationella privata insamlare (som t.ex. I:CO) blir allt viktigare aktörer genom sitt samarbete med stora varumärken.
- Textilier som samlas in separerat i de nordiska länderna verkar hanteras enligt anfallshierarkin. Detta på grund av prissättningen av använda textilier.
- Mer än hälften (54–80%) av de använda textilierna i alla länder hamnar i det blandade avfall och förbränns eller deponeras.

2.1.2 Litteraturgenomgång av spårbarheten av globala textilflöden

Den andra rapporten omfattar frågor vad som är känt och okänt om globala textilflöden relaterat till den nordiska textilkonsumtionen. Produktion och import av textil till Norden är cirka 21 kg per person, varav 7,5 kg exporteras som nya textilier. Produktionen av nya textilier är mindre än 1 kg per capita. Konsumtionen av nya textilier är ca 14 kg per person. Av de 4,5 kg använda textilier som samlas in separat exporteras ca 2,5 kg, med okänd slutanvändning. Ungefär 9 kg slängs i blandat avfall varje år.

Det finns väldigt lite kunskap om ackumuleringen av textilier i hushållen och nivåerna av privat återanvändning. Nivåer av export av sorterad och osorterad textil för återanvändning, återvinning och avfallshandling är okänt och endast den totala exportvolymen är känd. Konsekvensen av bristande data beror främst på svårigheten att sätta upp mål för återanvändning och återvinning, vilket gör det omöjligt att följa upp vad som händer med den insamlade textilen. Bättre samordning mellan aktörer kan också minska nivåerna av textil som går till förbränning och

deponering på grund av vanemönster. Brist på spårbarhet och transparens gör det ofta svårt att bygga upp allmänhetens förtroende för insamling av använda textilier.

Slutsatser

- Konsumtionen av nya textilier är ca 14 kg per capita i de nordiska länderna varje år.
- 80 % av de nya textilierna som importeras till EU-27 kommer från Asien, i synnerhet Kina och Indien.
- Andelen begagnade kläder på den globala marknaden är fortfarande liten, men har nästan fördubblats i värde sedan 2007. I vissa länder söder om Sahara utgör second hand kläder mer än 30 % av de importerade kläderna.
- Blandade fraktioner med textil för återanvändning och för återvinning av textil och textil för återvinning säljs i allmänhet för mer differentierad sortering och efterföljande återanvändning och återvinning utanför den nordiska marknaden.
- Även om det inte finns några krav på att rapportera uppgifter på insamling, återanvändning och återvinning av använda textilier i Norden är de ganska väl uppskattade, men det finns lite kunskap om de faktiska mängder återanvända och återvunna textil som exporteras från Norden.

2.1.3 Definition och dokumentation av operativa och best practice inom insamling, sortering, återanvändning och återvinning av använda textilier och hantering av textilavfall

Den tredje rapporten ger en övergripande bild gällande standarder, föreskrifter, certifieringar och frivilliga initiativ med fokus på best (practice).

Flera aktörer har betonat vikten av att gå "bortom insamling" för att effektivt påverka kunder och marknader. Detta inkluderar marknader och aktörer utanför Norden. Den föreslagna uppförandekoden bör därför inte begränsas till insamling och efterföljande hantering av använd textil i de nordiska länderna, utan även inkludera hantering av exporterad textil.

En av de stora utmaningarna med att skapa en uppförandekod längs hela värdekedjan är att gå längre än att underteckna ett avtal om att justera (och ibland ändra) företags och organisationers affärsmodeller. Det breda utbudet av aktörer som övervägs för uppförandekoden (ännu

inte fastslagna) kräver ett praktiskt tillvägagångssätt. Som ett exempel: en liten second hand butik har helt andra möjligheter och förutsättningar att agera än organisationer som samlar in stora mängder använd textil. Det är viktigt att utveckla en praktisk uppförandekod som går att efterleva (för alla aktörer) för att få alla aktörer "ombord".

Efterlevnaden av den planerade uppförandekoden måste noggrant kontrolleras för att vara effektiv. Den nuvarande situationen visar att det saknas tillsyn (t.ex. om textilbehållare sätts upp illegalt eller är märkta med tvetydiga etiketter och logotyper). Sanktioner för tveksam verksamhet eller till och med olaglig verksamhet genomförs sällan idag.

Slutsatser

- De flesta av de nuvarande standarderna betonar vikten av en korrekt tillämpning av avfallshierarkin med en tydlig prioritering för återanvändning.
- En central del av en uppförandekod är dokumentation av mängder av textil och deras källa och slutdestination (oavsett om det är insamling eller import eller återanvändning och export).
- Ett av de viktigaste incitamenten för konsumenten att donera textil är att ge något till välgörenhet. Därför är det viktigt att det klart framgår vad syftet med insamlingen är, hur mycket av intäkterna som går till välgörenhet (kan vara noll) och dokumentation som styrker dessa påståenden. Det ska också vara tydligt för konsumenten vem som genomför insamlingen.
- Insamlare bör acceptera all textil som inte riskerar att kontaminera annan textil, dvs trasiga textilier bör ingå.
- Sortering bör utföras av proffs när det gäller återanvändning och återvinning och 70–90 % av insamlad textil bör antingen återanvändas eller återvinnas.
- Kontroll och sanktioner är avgörande för en framgångsrik uppförandekod och tredjepartsförsäkran att kriterier efterlevs.

2.1.4 Jämförelse med avfallshantering av andra avfallsflöden

Den fjärde rapporten är en kort sammanställning av framgångskriterier för insamlingsystem för avfall i allmänhet med för- och nackdelar med olika lösningar.

När ett nytt system införs, är tålamod viktigt och både tid och ekonomiskt stöd kan behövas. Enligt WRAP (2009) har utrymmet vid in-

samlingsstället och tömningsfrekvensen påverkan på de mängder som samlats in. Information till konsumenterna om både hur och varför insamlingen sker är också en viktig del.

När det gäller att hitta nordiska system och lösningar är det viktigt att ha i åtanke att det som fungerar i ett land eller område, kanske inte fungerar i ett annat. Det kanske inte finns en lösning som passar alla regioner och systemen måste anpassas till lokala system och styrning.

Slutsatser

Det finns tre viktiga faktorer som måste beaktas när man väljer ett system för avfallshantering:

- Marknad.
- Renhet (korrekt sortering).
- Nöjda kunder.

För att det frivilliga åtagandet ska lyckas är det viktigt att nuvarande system byggs på och att därmed se till att de tre viktigaste faktorerna inte går förlorade. Insamling, återanvändning och återvinning fungerar inte om det inte finns en second hand marknad och återvinningsmarknad. Renheten av insamlade textilier och nöjda kunder är lika viktiga eftersom samlingen beror både på en insats av konsumenten och att det är rätt insats.

Mapping of current actors in the collection, sorting, reuse and recycling of used textiles and the management of textile wastes

By Nikola Kjørboe, David Watson, Maria Elander, Kari-Anne Lyng, Stefán Gíslason and David Palm

1. Introduction and aim

This document reports on the first stage on the path towards developing a reuse and recycling commitment for actors working within the collection, sorting, recycling and reuse of textiles in Nordic countries.

This first step provides an overview over the key actors who should be considered for inclusion in a common Nordic commitment, and their roles within the value chain. There are a large number of actors working within the area of collection, sorting, preparation for reuse and reselling of textiles and involved in textile waste management. Each actor operates according to its own business model and these business models vary widely. The legal and economic conditions under which they operate can also vary depending on their status as businesses, charities, authorities etc. This document aims to describe these differences and subsequently identify common and differing motivations, opportunities and barriers for more sustainable management of used textiles by the various actors.

The mapping of actors was performed by means of a literature review, through the consultants' existing knowledge from previous studies and via contact with existing networks and the members of the Nordic reference group. It has not been possible to describe all the actors individually, but the key actors in each Nordic country have been identified. Their main activities and roles are described along with estimates of the amounts of textiles they process, and an outline of the conditions under which they operate.

This document is one of four sub-reports that summarize the work from the first year of the Nordic Council of Ministers project *The Nordic textile reuse and recycling commitment*.

The project is one of six that constitute *Resource Efficient Recycling of Plastic and Textile Waste*, which was launched by the Nordic Waste Group (NWG) as part of the Nordic Prime Ministers' green growth initiative, *The Nordic Region – leading in green growth*. Read more in the web magazine *Green Growth the Nordic Way* at www.nordicway.org, or at www.norden.org/greengrowth

2. Scope and definition of actors

The report considers actors who are involved in the collection, sorting, reuse and recycling of clothing and household textiles and similar textiles from public and private organisations i.e. hospital linen, uniforms etc. Actors involved solely with the processing of used carpets or technical textiles are not included. The focus of the mapping exercise is on the formal actors since it is these who would eventually have an interest in signing a common commitment. They are also the actors who have the necessary organisational structure to allow adoption and implementation of such a commitment. These include charitable organisations, commercial collectors, municipalities, dealers and exporters of used textiles and textile waste. More minor formal actors in terms of total flows of textiles include second hand shops and platforms which facilitate peer-to-peer exchanges.

There are also many informal activities in the trade and processing of used textiles. This includes flea markets, exchanges of clothes between friends and family, etc. These have not been mapped in this report but are mentioned to provide a glimpse of the wider context. Similarly illegal actors are not mapped in detail here but again are mentioned to provide further context. These mostly comprise illegal collectors and exporters who collect used textiles both via illegal setting up of containers and through theft from the legal collector's containers.

It is worth mentioning something on the definition of charitable organisations who take a rather dominant position in the value chain for used textiles in Nordic countries. A charitable organisation is a type of non-profit organisation. However, it differs from other NPOs in that it uses money raised from activities, such as in this case the collection and trade of used textiles, to achieve social, philanthropic, religious or environmental goals serving the public interest or common good.

3. Key actors in Denmark

3.1 Broad estimates of the flow of textiles

A comprehensive web of salesmen, retailers, private- and business customers, charity organisations and waste treatment plants forms the main group of actors in the Danish market. There is a relatively high collection rate in Denmark which is mainly secured through the activities of charity organisations and a few commercial actors.

The Danish flow of textiles was mapped in Tojo *et al.* (2012) and updated in Danish EPA (forthcoming). As can be seen in Figure 1, the domestic use of textiles in 2010 was around 89,000 tonnes (excluding second-hand clothes and rags), which corresponds to an actual use per capita at around 16 kg per year (Danish EPA, forthcoming). This amount provides an indication of the amount of used textiles being generated each year if constant conditions are assumed. Approximately 41,000 tonnes are collected separately by various charity and private organisations each year. Of the separately collected textiles approximately 23,000 tonnes are exported for reuse and recycling and 12,000 tonnes are reused (with a small amount of recycling) within Denmark. The remaining 6,000 tonnes is incinerated.

The fate of the estimated 48,000 tonnes, the gap between new textiles put on the market each year and what is separately collected following use, can be roughly estimated using waste survey data supported by assumptions. These assumptions can be viewed in Danish EPA (forthcoming).

A summary of the flow of these textiles is presented in Figure 1.

Figure 1 Flow and destination of textiles in Denmark in 2010 (ton – in rounded numbers)



Source: own making based on updated data from Tojo *et al.* (2012) and Danish EPA (forthcoming).

3.2 Details on the roles

3.2.1 Municipalities and municipal waste associations

The Danish municipalities collect textiles waste via household waste and bulky waste streams. Most of these textiles are then sent for incineration at local waste incinerators which are owned by the municipalities. The municipality of Haderslev collects used textiles at the recycling depot for which it runs a recycling facility as a social project, where used textiles are cut into industrial wipes. The amounts are however quite small; no more than 60–80 tonnes per year (Tojo *et al.* 2012).

Apart from collecting and managing textiles waste, municipalities also play a very important role in administering the setting up of containers for used textile collection. The municipalities thus regulate the market by deciding who may set up containers on public land and in so-called recycling stations where citizens and small businesses bring their waste that is not for ordinary household collection. Commercial companies are only permitted to set up containers for textile collection if they cooperate with a charity. As a result charitable organisations dominate the market for used textile collection in Denmark.

3.2.2 Charitable organisations

Charity organisations play the dominant role in used textiles collection in Denmark. The Danish EPA (forthcoming) estimates that charity organisations collect around 33,000 tonnes of used textiles per year which corresponds to around 37% of the domestic sales of new textiles.

Frelsens Hær (the Salvation Army) is the largest collector by weight collecting around 7,500 tonnes per year. Frelsens Hær sells part of the collected clothing in their 20 second hand stores (Danish EPA, forthcoming) around the country, but the majority of the collected textiles are sold unsorted for export. The business is run by both volunteers but also engages staff in flex jobs, activation, job-training and other types of activities for the long term unemployed. Frelsens Hær claims to be the only charity organisation which is registered for VAT since they employ personnel in their second hand shops (Frelsens Hær 2013).

The second largest charitable collector in terms of quantity is Røde Kors (Red Cross). Røde Kors collects around 6,000 tonnes per year and their business model is very similar to the one of Frelsens Hær presents. In addition to selling around 10% of the textiles as second hand in one of their 200 stores, Røde Kors either exports the clothes for aid in developing countries (Røde Kors 2013), or they are sold for export on the international market for used textiles following sorting in Denmark (Danish EPA forthcoming). Røde Kors is the only one of the Danish charities that carries out detailed sorting of the used textiles they receive prior to exporting.

The third largest collector Kirkens Korshær collects around 5,000 tonnes exclusively across the counter in their 240 second hand shops i.e. they do not use containers for collection as most of the other large textile collectors in Denmark. This difference in the business model is also reflected in the amount of clothes suitable for reuse. Whereas Frelsens Hær and Røde Kors receive around 10% which is suitable for reuse in Denmark in their collections, Kirkens Korshær sells around 90% for reuse in their Danish shops (Danish EPA forthcoming). This can be explained by the fact that shop personnel look through and approve of all donations they receive. When they are forced to face a person rather than a container, citizens are also more likely to be critical in terms of what they donate. In return Kirkens Korshær is considered to be the organisation which receives the highest profit per ton of textiles received (Danish EPA 2013).

Figure 2 A “typical” textile collection container



In addition to these three large collectors there are a large number of smaller charity organisations which collect and sell used clothes and in some cases also other textiles. One of these that should be mentioned due to a somewhat different business model to the other organisations is UFF which collects approx. 1,700 tonnes of textiles a year which are 100% exported to the umbrella organisation, Humana’s sorting facilities in the Baltic states. UFF has no shops for collecting or selling used textiles in Denmark.

An overview of all collectors of used textiles is presented in Table 1.

3.2.3 Municipal waste fee for businesses

Common for the charitable organisations is that they in principle have to pay a business waste fee to the municipality when delivering leftover textiles which they can’t sell for reuse in Denmark or export for reuse and recycling elsewhere.

There are two types of fees. One paid per tonne for organisations delivering direct to waste management centres. The other is an annual fee for any organisation whose waste is managed by the municipality whether or not they themselves deliver to waste management facilities

The fees are determined by the municipality and are only intended to cover the costs of handling the waste and not to bring in a surplus (Miljøbeskyttelsesloven 2013). Many of the charity organisations have expressed frustration over having to pay this fee since they perceive themselves not as waste producers but rather as waste preventers.

Further, the fixed waste fee has received large criticism for amongst other issues varying significantly across the country (Hansen 2011). This means that the market conditions vary even within the country.

The larger charity organisations which collect textiles have however in most cases been able to negotiate an exemption from this fee with the municipalities. Smaller collectors might however not have the resources to carry out such negotiations.

3.2.4 VAT

Charity organisations are mostly exempt from paying VAT (SKAT 2013) as long as they use profits for charitable activities and do not employ any paid personnel (Momsloven 2013). As mentioned earlier Frelsens Hær is an exception as they do employ staff.

3.2.5 Commercial collectors of used textiles

Trasborg is the largest private collector used textiles (Danish EPA forthcoming). They are also the second largest collector overall including charities in terms of quantities of textiles and have the largest number of containers (Tojo *et al.* 2012). The company was established in 1917 and is today managed by the third generation in the family. In order to be given to establish containers in public space Trasborg has made an agreement with the charity organisation Verdens Børn (Children of the World), where they in their current contract commit themselves to donate DKK 700,000 per year from 2012–2014 (Trasborg 2013).

The company collects used textiles via containers all over the country and sorts them at a central sorting plant in Høje Taastrup. Trasborg collects around 7,000 tonnes of used textiles per year and estimates that as much as 40% is discarded as waste during the sorting process. The sorting is carried out by staffs which have completed training for 3–6 months. Trasborg has defined 125 different criteria for the sorting.

Figure 3 Snapshots from Trاسبorgs sorting centre in Høje Taastrup



Dantextil is another private organisation who prior to the economic crisis collected and recycled textiles in Denmark. This business model was not economically feasible in the years after 2008. Dantextil currently only collects textiles which other collectors can't use, and export them for recycling with their European partners (see later). However, Dantextil are currently negotiating collaborations with two charity organisations in order to collect textiles directly from Danish citizens (Dantextil 2013). The initial aim is to introduce 100+ new containers in the market.

There appears to be frustration among private actors, that the charity organisations have advantages in the market compared to the private

collectors. First of all the charity organisations are exempt from paying VAT while private collectors are not. Secondly, the charity organisations are given preferential treatment in granting of permission for setting up collection containers on public land. The fact that a private collector must team up with a charity organisation in order to collect used textiles is a significant barrier to entering the market.

A new actor entered the Danish market for used textiles in autumn 2012. I:Collect (I:CO), which is part of the larger SOEX Group, began collecting textiles through brand stores such as Jack & Jones and H&M. In short the brands sign an agreement with I:CO to let them collect used textiles in their stores. Depending on their business model the shops either take back their own brand or receive all donated textiles regardless of brand. Donations are usually rewarded with some kind of voucher for the next purchase as an incentive to customers. Once the consumers have donated the textiles in-store they are transported to central warehouses via existing logistics operated by the brands. I:CO then arranges the pick-up and export to a central sorting plant in e.g. Germany for sorting, re-use and recycling at. The contract I:CO negotiates with brands and organisations and varies in terms of payments, donations to charities etc.

At present the collection rates via these schemes does not seem to be significant (EUWID 2013 and Olsen 2013), but additional agreements with other brands are expected. This might lead to an increase in the importance of I:CO as an actor.

A summary of both the private and charity collectors is presented in Table 1.

Table 1 Collection of used textiles in Denmark (tonne)

	Number of shops	Collection	Reuse	Export	Incineration
Trasborg	-	7,000	-	4,200	2,800
Røde Kors	200	6,000	600	4,800	600
Frelsens Hær	20	7,500	750	6,000	750
UFF	-	1,700	-	1,080	120
Kirkens Korshær	240	5,000	4,500	0	500
Folkekirkens Nødhjælp	123	500	250	220	30
Danmission	85	1,000	200	700	100
Others*	450	12,000	4,700	6,100	1,200
Consumer to consumer	-	-	1,500	-	-
Total (rounded)	1,030	40,000	12,000	23,000	6,000

*"Others" is an estimate based on the number of shops. From this number, the amount of reuse has been estimated, based on an average of the number of shops and reuse from other collectors. The total collection, export and incineration have been derived subsequently, also based on data from the other collectors.

Source: Updated numbers from Danish EPA (forthcoming).

3.2.6 Dealers/ exporters of reusable textiles and textile waste for recycling

Once the textiles have been collected by the charity organisations or private collectors, these can potentially be sold to a large number of buyers in the market for second hand textiles in the European and global markets.

Dantextil is the only Danish organisation that receives used textiles from the collecting organisations. These tend to be textiles that the other organisations can't, or aren't interested in selling on: Mostly textiles fit for recycling. Dantextil receives around 5–6,000 tonnes per year from the collecting organisations and exports them for recycling with their European partners. Dantextil is partner in a larger European concern which includes amongst others German Comfort Trading and Hotex. The group collects more than 100,000 tonnes of used textiles per year in Europe. From time to time Dantextil also carries out sorting for other organisations. Dantextil claims to have a significantly lower rate of textiles which aren't reused or recycled than the organisations do, since they have better knowledge of the European market.

Some of the larger international operators which Danish organisations work with are the German SOEX Group (which also owns I:CO) and Belgian Rimatex. These international operators also collect used textiles from professional laundries and thus take up most of the textiles waste from the public sector (Kuhnt 2013). According to the Danish EPA (forthcoming) this amount is estimated to be around 2,600 tonnes annually but the number is uncertain as it is based on adjusted data from the UK.

The international textile operators buy and collect used textiles from charities and other large collectors and then sort the textiles in central sorting plants located all over Europe. From these central sorting plants textiles are either sent for reuse in countries around the world or recycling (either in-house or at external facilities) or sent for waste treatment like incineration or landfilling. Recycling most often comprises downcycling i.e. the material is used in creating e.g. upholstery, industrial rags or insulation and not included in new textile products.

3.2.7 Commercial sellers and citizen-to-citizen exchanges

In Denmark there is a large and flourishing market in used textiles for reuse. In many parts of the country, especially the larger cities, it has become mainstream to buy second-hand and vintage clothes, shoes and accessories. In addition to the around 1,030 shops run by charities (see Table 1) it is estimated that there are many commercially operating in-

dividual shops which are selling used and vintage clothing. However, no overview of these numbers could be obtained. Moreover, there appears to be no branch organisation representing these shops which could gather them under one umbrella to sign a Nordic commitment on reuse and recycling.

In Denmark there are three formal means by which used textiles are exchanged between citizens for reuse: resell in luxury second hand shops, resell on the internet or exchange via clothing libraries. It should be noted that informal unregulated exchanges via flea-markets or exchanges between family members are likely to involve far greater volumes than either luxury second hand shops or clothing libraries. However, again these are not relevant with respect to a Nordic commitment to recycling and reuse since they can't be gathered under any umbrella organisation.

Reselling (and buying) in luxury second hand shop is becoming increasingly popular in Denmark. The concept is quite simple: the so-called "luxury second hand shops" sell used clothes, shoes and accessories of various brands which are handed in by private persons. The shop takes a set commission in return if the pieces are sold (usually 50% of the sales value), or returns them to the owner if they cannot be sold. These types of shops have experienced increasing interest over the past years. This increased demand for used clothes seems to be a result of amongst other things a tendency towards a greater acceptance of mixing with previous collections and also a larger use of vintage clothes in the fashion image (Skov, Larsen & Netter 2011).

Reselling of textiles on the internet has also become popular in Denmark. Den Blå Avis and Trendsales specifically for textiles are the two major actors, but are supplemented with several smaller sites. The internet provides customers for and sellers of used clothing an easily accessible marketplace to meet at. Here private persons can exchange for free or by paying only very little to the internet site companies compared to the fees paid to luxury second-hand shops (Trendsales e.g. charges a small transaction fee for each transaction performed through their site).

The Danish EPA (forthcoming) estimate that around 1,500 tonnes per year is traded between citizens via these two types of citizen-to-citizen exchange forums..

The third option, clothing libraries, is a business model which has become popular in recent years in Sweden, and has recently begun to appear around Denmark. As the word indicates, the business model is similar to a library where one borrows clothes rather than books. There are

various models, but common amongst them are that one can borrow clothes which have been donated/given to the library for a certain lending period like e.g. 30 days. In Resecond dresses are available for loan under a conscription fee of DKK 600 for six months or DKK 1,000 for a full year conscription (Resecond 2013).

3.2.8 *Other actors*

There are also illegal collectors in Denmark who steal donated clothes from organisations' containers or from donations left outside second hand shop doorsteps. At present there does not seem to be a problem with illegal door-to-door collection although it has been seen in the past.

The findings of the assessments above are provided in Table 2 below.

Table 2 Collection, sale and export of used textiles in Denmark (tonnes)

	Number	Estimated collection amounts	Estimated sold as reuse	Estimated sold for recycling	Estimated export
Charitable organisations	25+	33,000	11,000	-	19,000
Private collection companies	2	7,000	-	-	4,200
Municipalities	98	24,000	-	-	-
Others	-	-	-	-	-

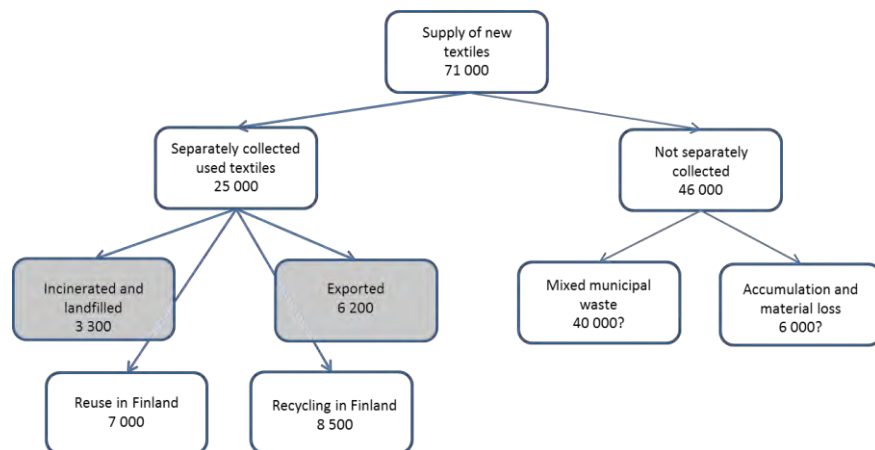
4. Key actors in Finland

4.1 Broad estimates of the flow of textiles

The net annual inflow of new textiles in Finland is about 71,000 tonnes per year. This corresponds to 13.5 kg per person. Most of the textiles are imported (76,500 tonnes), since domestic production is low (2,400 tonnes). Approximately 8,000 tonnes of new clothing and textiles are exported (Tojo *et al.*, 2012).

Approximately 25,000 tonnes of used textiles are collected annually, i.e. about 4.7 kg per inhabitant. Of this, 7,000 tonnes (28%) are sold for reuse in Finland and around 8,500 tonnes (34%) for recycling in Finland. Approximately 6,200 tonnes of second-hand clothes and rags are exported for sorting, reuse and recycling elsewhere. The remaining 3,300 tonnes (13%) are considered as unusable waste and are sent for incineration or landfill (Tojo *et al.* 2012).

Figure 2 Flow and destination of textiles in Finland in 2010 (tonnes - in rounded numbers)



Source: Tojo *et al.* (2012).

As 25,000 tonnes of used textiles are estimated to be collected yearly, approximately 46,000 tonnes of new textiles purchased each year remain unaccounted for. This implies a large potential for increasing the

supply of used textiles in Finland by 100–200% for eventual reuse and recycling. Some of the 46,000 tonnes is likely to be accumulated in households while a large part of the remainder most likely ends up in ordinary municipal mixed waste or bulky waste, 73% of textile waste from households is landfilled, 25% is incinerated, and 3% is recycled (Tojo *et al.* 2012). Currently, new incineration capacity is being built and will come into operation within the next few years.

Prior to ending into the mixed waste, another 25,000 tonnes are assumed to be given to friends and relatives for re-use (applies especially for childrens' clothing), or sold at flea markets or on the internet (Tojo *et al.* 2012). The latest active on-line market-place, Material bank (www.mpankki.fi), was launched in May 2013 and is open for all sellers and buyers of used textiles and other materials. Also traditional fleamarkets are popular among citizens.

Due to historical reasons, i.e. shortage of all materials a long time after the second world war, Finnish people in the 1950s, 1960s and 1970s were very economical and saving of clothes and textiles was common. Hence there are probably to this day numerous households where extensive stocks of various textiles can be found.

4.2 Detail on the roles

4.2.1 *Municipalities and municipal waste associations*

People can bring their discarded clothes and textiles to recycling centres, where the textiles are collected and sold. Some of the recycling centres alter, or design and make new products of the clothes and textiles. A couple of small enterprises, handicraftsmen and artisans use the textile material in their production. Sorting the textiles into suitable fractions is the biggest problem in the reuse of textiles, since the material has to be as homogenous as possible for the reclamation of end of life products. The sorting is mostly done by volunteers or by social firms, who's objective is to activate the long-term unemployed. Since sorting actors are few, effective logistics are needed to deliver reusable materials to those the firms that can use it (Tojo *et al.* 2012).

4.2.2 Charitable organisations

There is no state funded separate collection of textile waste. Almost all separate collection of used textiles in Finland is carried out by NGOs. The four largest collectors are UFF, Red Cross, Fida International and the Salvation Army.

NGOs have containers around the country for collecting textiles donations. These are mostly located in larger population centres and/or next to local waste collection sites for other source separated waste. In Finland there are more than 2,000 collection containers for used textiles set up by the various NGO's. All of the four organisations listed above have their own collection containers and initiates campaigns to collect used textiles (ibid). In addition, NGOs and some small enterprises arrange campaigns to collect the textiles from private households.

Collected textiles are mostly used to raise money for the various social and development projects run by the NGOs. Most of the NGO's sell reusable clothes in their own second-hand shops, some clothes and household textiles are donated in Finland and some is exported for reuse and recycling elsewhere. The rest is usually sorted into two categories: waste and material for recycling. The recyclable textiles are usually sorted into recycled material for industrial wipes, material for mechanically torn fibres for e.g. non-woven products, paper or yarn and thread. The material is very seldom used for chemical recycling (Tojo *et al.* 2012).

4.2.3 UFF

UFF Finland collects usable clothes, shoes and household textiles, and in 2013 collected more than 11,000 tonnes of used textile donations. UFF Finland operates in more than 250 municipalities with close to 1,300 container sites across the country and almost 2,500 containers. UFF collection containers are usually placed in municipal recycling centres¹ or business centres and shops. In addition to the collection containers UFF's own stores accept clothing donations during business hours, and in 2012 more than 550,000 paying customers visited the UFF shops (UFF Finland 2013).

The collected clothes are sorted at a relatively superficial level at a Finnish UFF sorting centre in Southern Finland, where it employs 45 persons on a regular basis. Clothes, shoes and textiles are separated into ap-

¹ In Finland these are called recycling spots.

proximately ten different categories, according to their subsequent use. A significant amount of the donated clothes comprises winter clothes. These clothes are mainly sold wholesale to other European countries.

Wholesale of unsorted or superficially sorted textiles is an important source of income for UFF Finland, to fund development projects run by UFF in Africa, India and other regions. Wholesale also creates employment in Europe as, for example, a large amount of the winter clothes donated to UFF are sold to Russian and Baltic wholesale buyers. Wholesale covers much of the employment costs and other expenses incurred by textiles collection and sorting in Finland. In addition UFF Finland does not have the capacity to sort or sell by sorted fraction all the used textiles they receive. Therefore, wholesale of relatively unsorted textiles is an important part of UFF Finland's business model (UFF Finland 2013).

However, domestic sales in UFF's 16 charity second-hand shops account while they only account for 8% of collected textiles, but are the main income source of the organisation. In addition to the 45 people employed at the sorting centre a further 200 people work in management, logistics, project administration and in the retail stores of the organisation (Hinkkala 2011, UFF Finland 2012, Huopalainen 2013).

4.2.4 Other charitable organisations

Red Cross collects used textiles through their household pickup service, containers and second-hand shops. Donations of textiles amount to 7,000 tonnes per year. The organisation has two sorting centres in Finland. Unlike many of the other charities who collect used textiles in Nordic countries, some of the textiles collected by the Finnish Red Cross are sent directly as disaster relief, rather than being sold to raise funds for their operations. Therefore, the Red Cross emphasises that they only wish for donations of clean reusable clothing and textiles. The organisation has expressed a shortage of mens' and boys' clothes of good quality. Also bed linen and blankets are in deficit. Of Red Cross's income, 25% is used for their textile reuse activities (Hinkkala 2011).

Fida co-operates with the Helsinki Region Environmental Services Authority and UFF. In Southern Finland Fida have 60–70 containers and one sorting centre. Annually they manage about 1,600–2,000 tonnes of used clothes and textiles (Hinkkala 2011). Fida International also runs 30 second-hand shops around the country where it sells a proportion of the clothing it collects.

The Salvation Army has 30 second-hand shops around Finland where used textiles are received and sold. Textiles are also collected through

containers, and the donated clothes and textiles are sorted in the organisation's four regional centres. Part of the sorted clothes goes directly to Estonia and Poland for reuse. Cotton, e.g. T-shirts, is delivered to industrial use (Hinkkala 2011).

In total, the four mentioned charity organisations and other collectors have been estimated to collect 25,000 tonnes of used textiles annually, i.e. about 4.7 kg per inhabitant. Of the overall 25,000 tonnes, 7,000 tonnes (28%) are sold as such in Finland for reuse and around 8,500 tonnes (34%) are recycled in Finland. About 6,000 tonnes of second-hand clothes and rags are exported while 3,300 tonnes (13%), are considered as unusable rags and waste (Tojo *et al.* 2012). These figures are estimates and the division between re-use, recycling, and waste is not exactly known and can vary between operators. For example, UFF reports that only 6% of the total 9,150 tonnes of collected textiles are sold in their retail shops in Finland, 73% is recycled through wholesale buyers, and 8% is sent to Africa for sale. The rest, 13%, is rags and textile waste. Rags can be recycled to some extent, the rest is incinerated (UFF Finland 2012).

4.2.5 Commercial collectors of used textiles

A smaller amount of used textiles is collected by municipal waste management companies via the municipal recycling centres. There are also a handful of privately owned companies which collect textiles both from consumers and industry to be used as input in their processes (Hinkkala 2011).

4.2.6 Commercial sellers and citizen-to-citizen exchanges

According to two internet services of Finnish flea markets (www.kirpputorit.fi and www.kirppikset.info) there are over 800 flea markets offering services all around Finland. Second hand stores are not included in the number, only municipal recycling centres, self-service markets and charity second hand shops. The scale of business on second hand products fluctuates with the general economic situation but in general people in Finland have very positive attitudes towards flea market activities and using second hand products. There are no studies on the amounts of the used textiles in the second hand business. In Finland there are over 30 internet based second hand trading sites. Some of them are focused on other product or material categories than textiles. The biggest sites are Huuto.net and Tori.fi. According to a new study made by

Huuto.net every fourth Finn plans to do more citizen to citizen shopping during the coming year. During the past six months 63% of Finns has bought products or services straight from other consumers. There are regional differences on the activity in buying from internet trading sites. Most active people come from north and east of Finland. This can be explained by the long distances to commercial services. (Published 28th august 2013 on <http://blogit.huuto.net/kehitys/2013/08/28/tutkimus-vertaiskauppa-kasvaa-ensi-vuonna-voimakkaasti/>)

Some clothing stores/brands organize regularly second hand campaigns where customers can sell their good quality clothes of the brand (for example Swedish Polarn o Pyret).

4.2.7 Dealers/exporters of reusable textiles and textile waste for recycling

A bit less than 10% of the textiles which are put on the Finnish market are exported as used textiles. It is however not clear who these actors are.

Apparently there are no big organized business on dealing and exporting of used clothes in Finland. Charity organizations like UFF, Fida and Red Cross have their own sorting centres in Finland and they export the sorted clothes by themselves or via partners. UFF reports that 6% of the total 9,150 tonnes of collected textiles are sold in their retail shops in Finland, 73% is recycled through wholesale buyers, and 8% is sent to Africa for sale. UFF sells clothes directly from their sorting plant to wholesale buyers, which are mainly participants in the HUMANA organization. Wholesale buyers have also been private buyers from Russia, Estonia and Lithuania. Red Cross emphasizes that only clothes with good quality are exported for international charity. Parts of the sorted clothes of Salvation Army go directly to Estonia and Poland for reuse.

UFF sells clothes directly from their sorting plant to wholesale buyers, which are mainly participants in the HUMANA organisation (Huopainen 2013).

Some minor activities around the export of used clothes have recently appeared. For example a small enterprise from southern Finland has organized few times a regional collection of used clothes direct from households. Donated used clothes have been exported to Syria, Egypt, Nigeria and Jordania and sold there.

4.2.8 Other actors

Illegal actors who steal used textiles from the collection containers are not common in Finland, but they do operate occasionally. This minor problem is tackled by introducing more secure container types.

The findings of the assessments above are provided in Table 3 below.

Table 3 Collection, sale and export of used textiles in Finland (tonnes)

	Number	Estimated collection amounts	Estimated sold as reuse	Estimated sold for recycling	Estimated export
Charitable organisations	4+	25,000	7,000	8,500	6,000
Private collection companies	-	-	-	-	-
Municipalities	336	60,000	-	1,500	-
Others	-	-	-	-	-

5. Key actors in Iceland

5.1 Broad estimates of the flow of textiles

From the information collected by Statistics Iceland, it is not possible to estimate the exact amount of textile produced for the domestic market. Assuming that around half of the domestic production is exported, it can be estimated that some 1,000 tonnes of the production is put on the domestic market. Import of textiles amounts to 3,800 tonnes (2012), giving a total estimate of 4,800 tonnes (15 kg per capita) of clothing and household textiles are put on the Icelandic market annually.

Approximately 1,400 tonnes (or 4.5 kg per capita) of used textiles (and shoes) are separately collected by organisations, of which 1,350 tonnes of used textiles are exported for sorting and further handling in Germany and the Netherlands. 50 tonnes are sold for re-use on the domestic market.

The majority of the remainder of textiles put on the market are assumed to end in mixed waste streams. Almost all (98.8%) of the waste destined for final disposal in Iceland is landfilled.² According to information from Sorpa waste management company textiles make up approximately 2.5% of total unsorted household waste³. In 2011 a total of 127,000 tonnes of waste was sent to disposal, including mixed household waste and mixed non-household production waste. Assuming the latter also contains around 2.5% textiles, 3,200 tonnes (or 10 kg per capita) of textile waste is landfilled annually.

As assumed above, some 15 kg per capita are put on the market annually, 10 kg are landfilled and 4.5 kg are collected for reuse or recycling. The remaining 0.5 kg (200 tonnes) is assumed to accumulate in closets and attics. The flows are given in Figure 3.

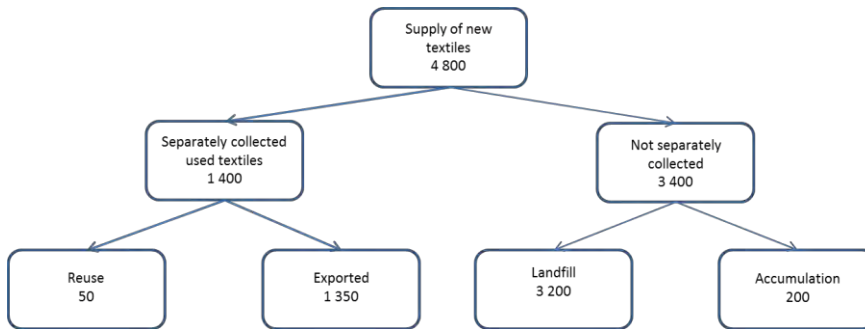
It should be underlined that many of the figures are based on assumptions. In addition a perfect balance in “input” and “output” flows should not be expected. The amount of new textiles put on the market is

² Statistics Iceland (2013): Statistical Yearbook of Iceland 2013. <http://issuu.com/hagstofa/docs/landshagir2013?e=7193385/5220768>. (Pg. 43).

³ Personal information received from Sorpa waste management company.

increasing, which means that the amount of used textiles being generated is likely to be lower than the amount of new textiles put on the market in any given year.

Figure 3 Icelandic textile flows in tonnes (rounded)



5.2 Detail on the role

5.2.1 *Municipalities and municipal waste associations*

Municipalities around Iceland as well as Sorpa municipal waste company cooperate with the Red Cross in the collection and transportation of used textiles. Recycling centres in Icelandic municipalities are usually operated by municipal waste associations or contracted private companies. Most recycling centres are equipped with a container for textiles which Sorpa (in most cases) collects and transports to the Red Cross at a price lower than the actual transportation costs.

In Reykjavík there are additionally textile containers owned by the Red Cross at local collection stations placed around the city. These stations are operated by the city authorities and the textile containers are in those cases emptied and maintained by the Red Cross. Municipalities thus indirectly grant the Red Cross permission to set up containers, but there does not seem to be a need for a collection permit as there is currently no competition on the market for textile collection in Iceland.

5.2.2 *Charitable organisations*

Although the Red Cross dominates the collection of used textiles through their cooperation with municipalities there are four other charity organisations involved in the collection of used textiles in Iceland. These four – the

Salvation Army, Subvention for Mothers, ABC Family and Iceland's Family Aid – collect exclusively across the counter at their second hand stores.

The Red Cross is the only actor exporting used textiles. The other four charity organisations donate the textiles they can't sell in their own stores to the Red Cross for export. The Red Cross exports textiles to the Netherlands and to Germany for further sorting, recycling and reuse, using the revenues from the export for charity projects in developing countries. The sorting of textiles in Iceland is thus limited to the clothing these organisations choose to offer in their stores and a very small fraction that is donated to sheltered workshops for rag production.

The charity organisations' sale of used textiles is exempt from VAT.

5.2.3 Commercial collectors of used textiles

As the Icelandic market is a small one, it is not feasible for commercial collectors to be involved in domestic collection of textiles. There are numerous second hand resellers in the country, but these focus on niche markets for which they import specific style of clothes from suppliers around the world. It is estimated that less than 1% of textiles collected through containers would meet the quality (and style) standard of these stores,⁴ which makes it meaningless for them to set up their own collection systems. There are a few multi-national corporations operating in Iceland that are involved in collection schemes such as the I:CO (I-Collect), but their stores in Iceland have not been actively participating in the program.⁵ This can most likely be explained by the small size of the Icelandic market and the fact that setting up and marketing such a system would most likely demand more resources than they would provide given the amount of textiles that would be collected through those.

5.2.4 Dealers/ exporters of reusable textiles and textile waste for recycling

The Red Cross acts as a middle man for the other charity organisations in the export of used textiles. This is, mostly driven by the fact that the amount collected by the other charities is far too small for it to be eco-

⁴ Spúttnik Retro store (2013): Personal communication.

⁵ Adidas Iceland (2013): Personal communication.

nomically viable for them to engage in export in isolation. There are no known commercial dealers operating in this field in Iceland.

5.2.5 *Commercial sellers and citizen-to-citizen exchanges*

As addressed above, the commercial resellers of used textiles depend solely on import of textiles that fit the concept of the store in question. The imported textiles are mainly from suppliers that buy clothes categorized as “retro clothing” either from sorting stations or storage of unsold clothing. The same goes for internet sales though little information exists on that topic.

Citizen-to-citizen exchanges of textiles is a common practice in Iceland, such as between friends and families and via a number of specific and social networking websites, including Facebook. However, no data is available on the scale of this.

5.2.6 *Other actors*

There is no evidence of an informal sector or any illegal operation involved in the collection, sorting, exporting or reselling of used textiles. In Iceland there is most likely no space for such activities, due to the small size and the simplicity of the market. Activities of this kind would easily be spotted and the hopes for profits would not be a motivation.

The findings of the assessments above are provided in Table 4 below.

Table 4 Collection, sale and export of used textiles in Iceland (tonnes)

	Number	Estimated collection amounts	Estimated sold as reuse	Estimated sold for recycling	Estimated export
Charitable organisations	5	1,400	50	0	1,350
Private collection companies	0	-	-		
Municipalities	0				
Others	-	-			

It should be noted that several municipalities or their waste associations are involved in the collection of used textiles. However this is in all cases solely done to assist the Red Cross in their charity work without any notable charging. Thus, municipalities are not included in the table as a separate actor.

6. Key actors in Norway

6.1 Broad estimates of the flow of textiles

Due to limited production of clothing in Norway, the net annual amount of clothing put on the market is assumed to correspond to the amount of imported clothes, which is about 72,000 tonnes per year. (Statistics Norway, 2013). Another estimate made in the pre-study for this project showed 88,500 tonnes, which was not used in this study (Sundt *et al.* 2013).

According to Statistics Norway the total amount of textile waste was 113,000 tonnes in 2011, which is about 22 kg per capita per year. However, these numbers include all sectors such as textile waste from industry and not just households. It has been estimated that approximately 48,000 tonnes of used textiles were generated by households in 2011 (Statistics Norway 2013) and that this has more than doubled over the last 20 years (Norwegian Ministry of Environment 2013).

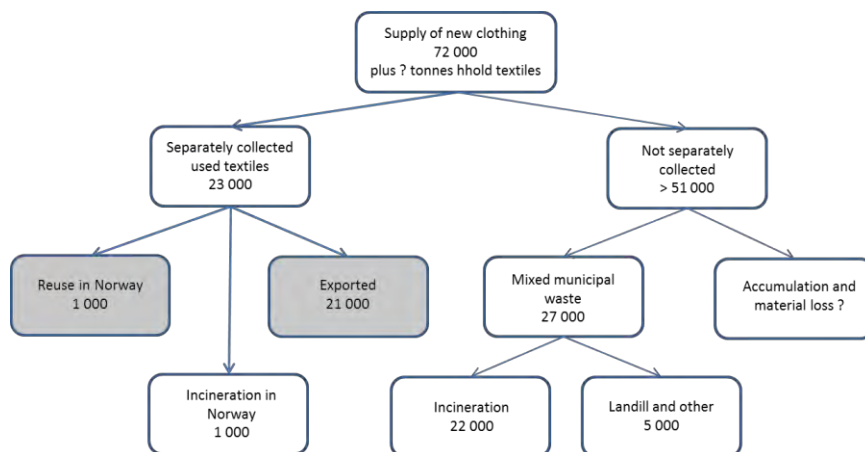
About 23,000 tonnes of the total used textiles are collected separately by charities and other organisations. According to annual reports from the charities this approximately 1,000 tonnes is separated for reuse in Norway, approximately 21,000 tonnes of mixed used textiles are exported for reuse and recycling in other countries Laitala *et al.* (2012) and the remaining approx. 1,000 tonnes of low quality textiles are incinerated.

It is assumed that the majority of the remaining used textiles generated each year (approx. 27,000 tonnes) end in mixed municipal waste and is mostly incinerated with a small share going to landfill. There are no longer any textile recycling facilities in Norway. Laitala *et al.* (2012) estimate that 25–35% of the textiles that end in mixed municipal waste streams each year could have been reused. Other studies indicate even higher reusable amounts (UFF Norway 2013).

There is a large gap between the new clothing put on the market and the estimates of used textiles that are either separately collected or end in mixed municipal waste. When the sold new household textiles put on the market are added into the equation, the gap grows even larger. Some of this gap can be accounted for by accumulation in household lofts and wardrobes. In addition, if quantities of new textiles put on the market each year are growing, then one would expect a lower generation of

used textiles than that put on the market in any given year. Finally, the estimations of textiles in mixed municipal waste are likely to be based on some limited sampling surveys and therefore associated with significant uncertainties.

Figure 4 Flows in tonnes (rounded) and destination of textiles in Norway in 2011



6.2 Detail on the roles

6.2.1 Municipalities and municipal waste associations

In Norway there are 428 municipalities and there is no common system on whether or how to collect used textiles and textile waste from households. Most of those municipalities who do offer collection of textiles collaborate with the charity organisations Fretex and UFF.

In the Drammen region, however, the inter-municipal waste company representing nine different municipalities currently collects textiles in cooperation with a private company called Hofman Renotec who sends textiles to Poland and Lithuania. The amount collected per year is about 500 tonnes (RfD 2012).

The Norwegian municipalities are willing and motivated to participating in creating a system for separate collection, as their waste management branch organisation, Avfall Norge, has stated that textiles should be separately collected by the municipality similar to other municipal waste streams such as paper, glass etc.. In their opinion there should be a national objective for reuse and recycling of textiles and that there should be an EPR system for textile waste (Avfall Norge 2012).

6.2.2 Charitable organisations

There are two large actors for collection, sorting, resell and export of usable textiles in Norway, Fretex and UFF.

Fretex Norge is the largest textile collector and second-hand shop chain in Norway, and is owned by the Norwegian Salvation Army. Their main purpose is to employ people with difficulties finding employment (Fretex 2012). Fretex currently has 1,800 collection containers distributed all over Norway. They have 4 facilities for sorting and treatment of used textiles and 12 facilities for preparation for export of textiles. The first second-hand shop was opened in 1905 and now there are more than 42 shops all over Norway (Fretex 2012).

The amount of textiles collected is increasing and in 2011 Fretex collected 11,722 tonnes and exported 10,145 tonnes (Fretex 2012). The exported textiles are sold as reusable and are mainly sent to Europe, Asia and North Africa. Fretex, however, have no system for ensuring that the textiles they export are in fact reused and not recycled or eventually disposed of as waste. Economic incentives, however, are likely to ensure that this does occur.

UFF Norge was established in 1979 and has 2,200 containers and 17 reshipment facilities in Norway. Of all of the textiles collected are exported and sent to sorting plants in Eastern Europe. UFF make reports that document how much are sorted for reuse and different recycling options. UFF Norge sells 0.3% of the collected textiles in their two second-hand shops in Oslo, imported back from sorting plants abroad. They collected about 7,707 tonnes textiles in 2012, and the amounts are increasing (UFF Norge 2013).

In addition to Fretex and UFF Norge there are a large number of smaller organisations collecting clothes and donating to collaborating partners abroad. Examples are Estlandsforeningen Midt Norge, Aktiv barnehjelp, Menigheten Pilgrimsfolket. Laitala *et al.* (2011) states that in 2011 a total of 20,745 tonnes used textiles were exported, and presumably 3,000 tonnes of those were from sources other than UFF Norge and Fretex.

6.2.3 Commercial collectors of used textiles

There are few commercial collectors of used textiles in Norway. As already mentioned one private waste company called Hofman Renotec collects textiles and sells them to Eastern Europe. In addition to some municipalities in the Drammen region the company collaborates with local sports associations to collect used clothes and shoes.

6.2.4 Commercial sellers and citizen-to-citizen exchanges

Fretex is the most common second hand shop in Norway. There exist other second hand shops, but mostly small, local ones without any branch organisation that represents them.

There is a large range of internet pages where consumers and companies can pay for advertisements for selling usable textiles. Examples of webpages are www.finn.no, www.trendsales.no, www.bazaar.no and www.bloppis.no. Recently Fretex opened an online store (www.miinto.no/fretex).

6.2.5 Other actors

In Norway stealing from the used textiles containers is a problem for the charity organisations. UFF estimates theft from collection units to be about 10% (UFF Norge 2013). Fretex also experiences theft from their containers. It is probable that most of the stolen textiles are exported.

In Norway flea markets are a very common source of income for local sports associations and school bands. According to Laitala *et al.* (2013) there are 1,696 members of the Norwegian Band Federation, of which most of them has two flea markets per year (but some of them are coordinated). UFF has estimated that residuals from flea markets constitute 1,500 tonnes textiles per year.

The findings of the assessments above are provided in Table 5 below.

Table 5 Collection, sale and export of used textiles in Iceland (tonnes)

	Number	Estimated collection amounts	Estimated sold as reuse	Estimated sold for recycling	Estimated export
Charitable organisations	Unknown (2 large)	11,729,500	1,000	0	10,151,800
Private collection companies					
Municipalities	9	500			500
Others					

The market for used textiles in Norway is characterised by a few stakeholders that collects most of the usable textiles. A small amount is sold in Norway, but most of the usable clothes are exported. Most of municipalities that offer collection of textiles collaborate with charitable organisations. The only example of collaboration with private company is an inter-municipal waste company representing 9 municipalities.

The private company collaborates with local sports associations to collect used clothes and shoes, but these figures are not publicly available.

7. Key actors in Sweden

7.1 Broad estimates of the flow of textiles

In 2011 the SMED consortium mapped textile flows in Sweden and included clothing and home textiles (e.g. curtains, bed linen, blankets) but not shoes or furniture (e.g. sofas)(Carlsson *et al.* 2011). Figures on textile consumption are from 2008, figures on textile in mixed household waste are based on 57 pick analyses performed during 2008–2010 and figures from reuse are from the ten charities in the branch organisation Ideell Second Hand and Humana during 2008.

Sales of new clothing and household textiles totalled 132,000 tonnes in 2011 of which 95,000 tonnes was clothing and 37,000 tonnes was home textile. This corresponds to about 15 kg per person per year (Carlsson *et al.* 2011). Trends show that the consumption of textiles is increasing. This amount provides an indication of the amount of used textiles being generated each year if constant conditions are assumed.

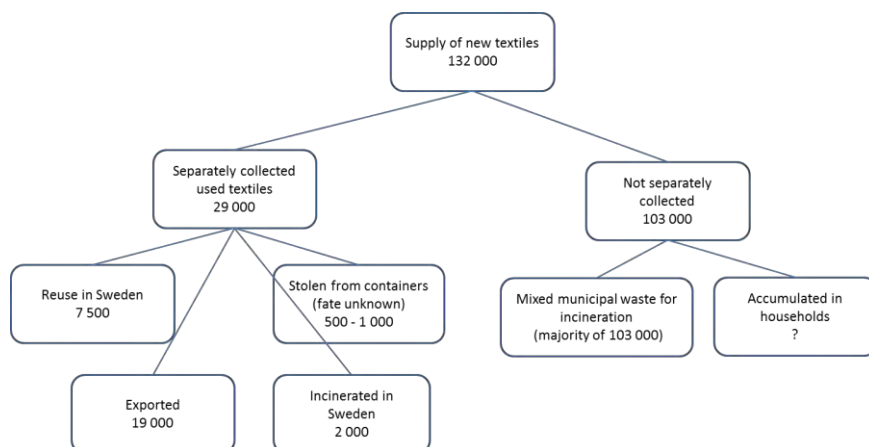
About 20% was collected by charities; more than 50% was thrown in mixed waste and the remaining 30% is likely a mix of household storage and discarding at recycling centres. A recent, not yet published study by the municipality of Stockholm shows that the textile flow at recycling centres is significant (Personne 2013) and these flow have been combined into “Not separately collected in Figure 5.”

Approximately 7,500 tonnes of the used textiles collected by charitable organisations is sold for reuse in Sweden (personal communication with Ideell Second hand) with 19,000 tonnes exported for reuse and/or recycling in other countries (Tojo *et al.*, 2012; Enebog, 2013; Rosinski, 2013). Approximately 800 tonnes is stolen from containers and the remainder is incinerated in Sweden. .

The fate of the estimated 103,000 tonnes gap between new textiles put on the market each year and what is separately collected following use, is not known but the majority is assumed to end in mixed household waste ending in incineration though some will also be accumulated in households and not disposed of.

Figure 5 show the Swedish textile flows adapt. The net inflow is assumed as the same as the net import since domestic production is very small.

Figure 5 Swedish textile flows in tonnes (rounded)



Adapted from Carlsson *et al.*, 2011.

The branch organisation Ideell Second Hand more detailed figures for collection and reuse of textiles in 2011 by their members which are presented in Table 6.

7.2 Detail on the roles

7.2.1 Municipalities and municipal waste associations

The Swedish municipalities have an exclusive right to all household waste and comparable waste which means that when textiles have become waste it is only municipalities or their appointed contractor that are allowed to take care of textiles (Swedish environmental code, 15:1). In general the municipalities only collect textiles in the mixed waste fractions for incineration. However, three municipalities/contractors are performing pilot projects to separately collect textiles, namely RagnSells in Karlstad, Borås Energi och Miljö and the municipality of Stockholm.

Most municipalities allow charity organisations to collect textiles at recycling centres for reuse and to put collection containers on public land. This is possible since reuse is not defined as waste management. There is no clear regulation for how this is done and the municipalities have diverse demands on the charities. A common demand is to have a “90-konto” which is only given to charities that meet certain conditions on how much of the revenue that goes to the charity and what the charity is (Rosinski 2013; Mårtensson 2012). This is however, according to

the legal departments at the city of Gothenburg and Waste management Sweden, this demand is not a valid requirement (Moberg 2013). Illegal collection is very common (Rosinski 2013).

Waste management Sweden (Avfall Sverige) is the branch organisation for waste management in Swedish municipalities and most waste management companies in Sweden. They are increasingly engaged in the issue of textiles and textile waste both due to the increased interest from their members to consider collection for recycling and to aid in work on waste prevention, e.g. reuse.

7.2.2 Charitable organisations

There are about 10 larger charity organisations collecting textile for reuse and recycling in Sweden at present. Most of them are organized in the branch organisation Ideell Second Hand with the main exception being Humana Sverige. Eight of the members reported collection figures for 2011 which are seen in 6 in tonnes together with estimated amounts for other actors. As seen in the table the major actors are Myrorna, the Swedish Red Cross and Human Bridge.

Table 6 Textile flows in charities (figures are rounded) in tonnes

Organisation	Collected	Reuse	Export	Waste
Myrorna	11,000	3,500	6,500	1,000
Swedish Red Cross	5,000	2,500	0	2,500[2]
Emmaus Björkä	2,300	165	1,950	200
Vinden	100	25	65	10
Stadsmissionen	1,070	50	485	535
PMU	1,400	280	1,050	70
HumanBridge	4,850	200	4,500	150
Reningsborg	45	18	18	9
Others including non-members [1]	2,600	720	1,410	470
Total	28,400	7,500	16,000	4,900

[1] Including illegal/grey market and estimated to 10% of total reuse market made by Rosinski (2013) based on number of collection containers.

[2] Increasingly being sent to additional sorting by KICI in the Netherlands.

Most charity organisations collect textiles by containers at recycling centres and on public land, often close to recycling stations for packaging waste. The Swedish Red Cross is an exception in that it receives everything directly across the counter in their second-hand stores “Mötesplats Kupan”. The charities mostly request only donations of textiles which are clean and undamaged but Human Bridge asks for all textiles irrespective of quality since they export most of their textiles to European sorting facilities. Myrorna and the Red Cross sort most of their textiles manually in Sweden. While Myrorna exports approximately half of

their collected textiles, all the textiles collected by the Swedish Red Cross remain in the country either sold for reuse, directly or restyled in their shops or disposed of as waste. However, this is under change (see later).

Charities are exempt from VAT and in many cases also from all taxes. There are four main tax regulations regarding this which in short require that the purpose of the organisation should be beneficial for the public in order to be exempt from taxes (Swedish Tax Agency 2013). The issue of VAT is still somewhat uncertain, however, due to European regulation.

There is currently no certification/code of conduct for charities regarding collection of textiles. Human Bridge are in the forefront of looking at a code of conduct for their collection and several of their European partners are certified textile sorters (Rosinski 2013). The branch organisation started work on a joint code of conduct in 2012 and work is ongoing in cooperation with this project (Enebog 2012).

7.2.3 Commercial collectors of used textiles

There are no larger private commercial collectors of used textiles in Sweden. H&M recently started cooperation with I-Collect in a programme called "Don't let fashion go to waste" which include collection in 97% of all their stores worldwide (Brännsten 2013), but so far the quantities collected under this campaign have been relatively small.

Stena Recycling processes some industry waste textile to prepare it for incineration and was until 1992 engaged in recycling of textiles in Sweden (Torrington 2010).

7.2.4 Dealers/exporters of reusable textiles and textile waste for recycling

Myrorna uses their own trading company, Fretex International, together with their Norwegian counterpart. Fretex International in turn deals with around 15 customers which are visited annually to ensure integrated operations. A code of conduct for Fretex and its customers is under development.

KICI foundation has since April 2013 been partner to the Red Cross with the objective that within a year they will manage all of the textiles that cannot be sold in the "Mötesplats Kupan" second hand stores (Dahlin 2013). Several depots around Sweden have been created to facilitate collection of textiles for transport to the Netherlands where additional sorting is made for reuse, recycling and disposal (Jansen and Vos, 2013). KICI was also a partner in the textile collection pilot in the munic-

ipality of Stockholm. KICI is currently in discussions on cooperation with several charities for export of textiles including Emmaus Björkå and Stadsmissionen (Dahlin 2013).

Human Bridge works with the Boer group sorting facilities in the Netherlands and Germany. The Boer group is has a “Certified Textile Sorting Process Assessment Foundations” (Beoordelingsgrondslag Gecertificeerd Textielsorteerproces) and all textiles are sent for reuse and recycling (“Boer Group – A world of textile recycling,” 2011). Human Bridge has chosen this partner to ensure that nothing goes to landfill or incineration as for their own sorting in Sweden. Previously they cooperated with several sorting facilities in Eastern Europe but most of these could not guarantee zero landfill (Rosinski 2013).

7.2.5 Commercial resellers of used textiles

There are a huge number of second hand stores and a search in the yellow pages⁶ gives close to 3,000 hits. It however includes also charities and other second hand products such as furniture. The total flow of textiles in these stores is however likely still low since they are normally small and located outside of main shopping areas.

There are also clothing libraries where clothes are rented for a monthly fee. These are however still in the numbers of less than 10 nationwide (Sundin 2013).

Some brands have started a second hand corner in their existing stores and Klättermusen offers a refund when you return their clothes (Klättermusen 2013).

There are two main trading sites available online in Sweden, namely Tradera (Ebay) and Blocket. The amount of reused textiles traded on these sites are difficult to quantify for several reasons, one being that reused and new are mixed together. IVL performed a study on the global warming reductions due to second hand trade on behalf of Blocket (Blocket.se 2013) and the published results showed a saving of 2,900 tonnes of carbon dioxide equivalents from traded textile in 2012. Using the figure 15 kg CO₂e per kg (Palm 2011) of textiles gives a total amount of about 200 tonnes of textile and therefore a small part of the trade of used textiles.

⁶ www.eniro.se

7.2.6 Other actors

In the informal sector people are exchanging clothes and especially baby and children's clothing are frequently traded between family and friends. With baby clothes the perception is that clothes are free from toxic substances when they are reused since they have already been washed several times as one reason for this informal market (Palm 2011).

Table 7 Collection, sale and export of used textiles in Sweden (tonnes)

	Number	Estimated collection amounts	Estimated sold as reuse	Estimated sold for recycling	Estimated export
Charitable organisations	11 larger, Myrorna, Human Bridge, and the Red Cross are the key actors	30,000	8000	0*	15,000*
Private collection companies	No Swedish, few operating outside the grey/illegal market	<100 legally, 2,500 grey and illegally	unknown	unknown	100%
Municipalities	3, Stockholm, Karlstad/RagnSells, Borås	separate only pilot programmes, in bin and sack ca 72,000, recycling centres unknown	0	Zero at present, pilots aims at exporting for recycling	Zero at present, pilots aims at exporting for recycling
Others	0	0	0	0	0

* In Sweden. The export includes reuse, recycling and disposal.

The grey market and illegal collection is due to its nature difficult to quantify. According to Rosinski (2013) about 4% of all collected clothes by charities are stolen from the containers. Thefts occur both by locals who looks for the most valuable clothes and generally destroy the container and more organised thefts by recurring thieves. The clothing is in the latter case sold to non-certified sorting facilities mainly in Eastern Europe.

Possibly questionable organisations perform regular door by door collection in residential areas. Active organisation are among others Baltic Life (registered in Latvia), Clothing collection team ltd (registered in the UK), Ronahjälpen in cooperation with Malmtext. These organisations have no clear contact information or any control that they actually provide to charity what is claimed when collecting clothes. Svensk Insamlingskontroll/90-konto, which controls serious charities has in 2010–2011, warned the public not to provide e.g. Malmtext and also Humana Sverige with any donations (Micanovic, 2010; Ravhed, 2011).

The findings of the assessments above are provided in Table 7.

8. Comparison of roles and conditions in the Nordic region

8.1 Key actors and their roles

8.1.1 Collectors

In all five Nordic countries the charitable organisations dominate the market for collection of used textiles, and are thus responsible for by far the largest proportion of what is being collected in the Nordic region. The level of collections of the total amount of new textiles being consumed every year range between 20% (in Sweden) and 46% (in Denmark).

In most countries the collection market is dominated by a few large collectors, and is then supplemented by no more than a handful of other smaller collectors. This is true for all countries except Denmark, where there are a large number of small charitable organisations that also collect textiles as part of their financing operations.

Charitable organisations like the Red Cross, the Salvation Army and UFF operate in most of the Nordic countries, where they are amongst the dominant market players. However, it should be noted that in some cases, for example the Red Cross, the country organisations have very little organisational or financial connection to one another. Other organisations like Kirkens Korshær (Denmark), FIDA International (Finland), Fretex (Norway), and Myrorna (Sweden) have a prominent role in one country only although Fretex and Myrorna are connected via Fretex International. In Denmark, Finland and Norway the charitable organisations are supplemented by one or more commercial collectors.

The organisations vary in their organisation of collection and subsequent handling. Some collect via containers, some via shops, and some have both options. Further, some sort with trained and employed personnel, others with changing and voluntary employees, and some export textiles for sorting elsewhere. The organisations knowledge of, and ability to participate in, the European market for used textiles also varies

considerably, which thus makes this sector and the level of professionalization quite diverse.

However, this situation is under change. The Swedish Red Cross for example, previously either sold the textiles they collected for reuse in their own shops or disposed of it as waste with no export for reuse or recycling. However, the charity is now partnering with the Dutch-based KICI foundation with the objective that they will begin sending all of the textiles that cannot be sold in the Red Cross shops to the Netherlands for sorting reuse, recycling on the European market. Similarly the smaller charities in Iceland donate all the textiles they can't sell in their shops to the largest Icelandic player, the Red Cross, who exports for reuse and recycling in other markets.

Similar cooperative arrangements are likely to appear in the future which will ensure that the management of used textiles occurs via larger organisations with a better knowledge of international markets and better economies of scale. KICI and other international operators such as I:CO are also entering the market via collaboration with larger clothing brands such as e.g. H&M and Jack & Jones and directly with municipalities.

The role of the municipalities varies from country to country, but most work together with the charitable organisations in allowing one or more organisations to set up collection containers in the recycling centres and/or on public land. A few municipalities collect textiles without collaborating with an organisation for export (Norway), recycling (Denmark and Finland), donation (Iceland), or preparation for re-use (Finland). A cluster of municipalities in Sweden are planning to start export of textiles suitable for recycling.

There are unknown but likely smaller amounts of used textiles being re-used via second-hand shops, flea-markets, internet platforms, informal exchange via family and friends. No overview of these quantities has been obtained.

Illegal operators are a problem to varying extends in all Nordic countries except Iceland. The illegal and grey market players can, due to unclear regulation on collection, work rather freely. This is an issue that needs to be addressed, both to ensure the public's confidence in the textile collection as a whole and to ensure that textiles are managed in accordance with the waste hierarchy.

8.1.2 Dealers/exporters

Most collectors conduct an initial sorting of the collected textiles in order to identify garments which are suitable for direct reuse in the country. Hereafter the textiles (which aren't discarded as waste) are exported to sorting facilities, mainly in Central and Eastern European countries.

As already described the smaller Nordic collectors tend to cooperate with larger collectors in the export of textiles since only the larger collectors have the resources to run the export. The larger charitable organisations and private collectors often implement the export via European partners such as logistics firms and/or directly with the sorting facilities. Fretex International exports from both Sweden and Norway and deals with around 15 customers which are visited annually to ensure a serious enterprise. A code of conduct for Fretex and its customers is under development. UFF meanwhile uses its own sorting facilities in the respective Nordic country (e.g. Finland) or exports unsorted textiles directly to their sorting facilities in the Baltic countries.

8.2 Conditions for operation

Charitable organisations seem to have an advantage for operating in the Nordic countries rather than private collectors since they are allowed to collect used textiles in public spaces and municipal recycling centres.

In Denmark, Iceland, Finland and Sweden at least charities are exempt from paying VAT. The issue of VAT is however still somewhat uncertain due to European regulation. The European Commission has stated that the VAT exemptions are against EU regulations, but a solution to the dispute is yet to be found.

Commercial collectors in Denmark report frustration due to uneven market conditions for actors who operate on the same market. Charitable organisations on the other hand feel that the entering of private collectors will reduce the final resources available for people in need.

8.3 Discussion

This initial mapping has provided an overview of the key actors who should be considered for inclusion in a Nordic commitment. Several of the main actors operate in more than one of the Nordic countries, but a handful of nationally operating organisations should also be accounted

for. The charitable organisations currently have an advantage in that they are exempt from paying VAT and in some countries enjoy preferential treatment in terms of gaining permission to set up containers on public land or at municipal recycling centres. With respect to VAT this advantage is expected to change at least in the EU members of the Nordic countries due to conflict with current EU regulation.

Only one commercial actor (in the Danish market) has a significant share of the collection market in Nordic countries. Even they however have been required to team up with a charitable organisation in order to be allowed to collect used textiles in municipal recycling centres. International private collectors are, however, seen as an increasingly important actor via cooperation with high street brands such as H&M. Similarly, municipalities in some of the Nordic countries are also starting to show increasing interest in used textiles.

Due to the relatively good prices for used textiles, the textiles which are separately collected in the Nordic countries appear to be handled to a certain extent according to the waste hierarchy. This is most probably true for reusable textiles although there is limited knowledge as to the actual end fate of much of what is exported for reuse and recycling.

Separately collected textiles that are not suitable for reuse, however, are to a large extent incinerated or landfilled rather than recycled due to lack of attractive markets or lack of access to the markets for this fraction. Moreover, more than half of used textiles in all countries end in mixed municipal waste streams and are thereafter incinerated or landfilled. Much of this could have been reused or recycled.

9. References

- Adidas Iceland (2013). Personal communication.
- Affaldsbekendtgørelsen: Kapitel 8 – Principper for kommunalbestyrelsens fastsættelse og opkrævning af gebyrer <https://www.retsinformation.dk/forms/R0710.aspx?id=144826#Kap8>
- Avfall Norge (2012). Notat innsamling og gjenvinning av tekstiler, <http://www.avfallnorge.no/stortingsmeldingen2012.cfm?pArticleId=24926&pArticleCollectionId=3653>
- Blocket.se (2013). Pressmeddelande, Begagnathandels klimavinst: 1,6 millioner ton sparade växthusgaser, <http://www.mynewsdesk.com/se/pressroom/blocket/pressrelease/view/begagnathandels-klimavinst-1-6-miljoner-ton-sparade-vaexthusgaser-864275>
- Brännsten, C. (2013). Personal communication with Cecilia Brännsten, H&M Sustainability department 2013-10-04
- Carlsson, A., Hemström, K., Edborg, P., Stenmarck, Å., Sörme, L., (2011): Kartläggning av mängder och flöden av textilavfall (No. 46), SMED reports. SCB and IVL, Stockholm.
- Danish EPA (forthcoming). Fremme af affaldsforebyggelse og øget genanvendelse i tekstilbranchen, Unpublished report by the Danish EPA
- Danish EPA (2013). Dialogue meeting number III, Fremme af affaldsforebyggelse og øget genanvendelse i tekstilbranchen, 23 January 2013
- Dantextil (2013). Personal communication with Peter Albertsen, July 2013
- Dahlin, Elisabeth (2013). "Swedish market for collection, reuse and recycling of used textiles – Swedish Red Cross" telephone interview. IVL
- Enebog, Emma. (2013). "Swedish market for collection, reuse and recycling of used textiles – Myrorna" telephone interview. IVL
- EUWID (2013). The waste textiles market in Germany, EUWID Recycling and Waste Management Issue 7/2013 of 04.04.2013
- Frelsens Hær (2013). Genbrug med hjertet, <https://www.frelsenshaer.dk/index.php?page=genbrug>
- Fretex (2012). Årsrapport, Fretex.
- Fretex (2013). www.fretex.no
- Hansen, C. S. (2011). Affaldsgebyr otte gange så højt i hovedstaden som i Jylland, 13 April 2011 in Berlingske Business, <http://www.business.dk/oekonomi/affaldsgebyr-otte-gange-saa-hoejt-i-hovedstaden-som-i-jylland>
- Hinkkala, H. (2011). Tekstiilikierätyksen esiselvitys – Poistotekstiilimassojen hyödyntämistöjen edistäminen jätehierarkian mukaisesti, VELOG – Vetovoimaa logistiikalla Forssan seudulle –projekti, Hämeen ammattikorkeakoulu, Pitääkö kääntää tähän?
- Huopalainen (2013). Personal communication, UFF
- Klättermusen (2013). www.klattermusen.se

- Kuhnt, C. L-H. (2013). Personal communication with Christian Lind-Holm Kuhnt, Head of Environment De Forenede Dampvaskerier, February 2013
- Laitala, K., Klepp, I. G., Morley, N., Meistad, T., Chapman, A., Chen, W., Hebrok, M. Daae, J. and Augustulen M. H (2012). Potensiale for økt materialgjenvinning av tekstilavfall og andre avfallstyper (papir/papp, metall og glass). Fagrapport nr. 2-2012 Rev. 1. SIFO, 2012.
- Miljøbeskyttelsesloven (2013). Kapitel 6 – Affald § 48
<https://www.retsinformation.dk/Forms/R0710.aspx?id=13072#K6>
- Moberg, S. (2013). Personal communication with Stina Moberg, Kretslopp och Vatten, The city of Gothenburg 2013-10-13
- Momsloven (2013): Kapitel 3 – Fritagelser § 13, stk. 19,
<https://www.retsinformation.dk/Forms/R0710.aspx?id=17030>
- Mårtensson, P. (2012). Interview for Guidelines for eco parks
- Olsen, D. R. (2013). Personal communication with Dorte Rye Olsen, Sustainability Manager at Jack & Jones, April 30, 2013
- Palm, D. (2011). Improved waste management of textiles (No. B1976), IVL Svenska Miljöinstitutet.
- Personne, H. (2013). Textilt avfall en framtida resurs – Municipality of Stockholm.
- Resecound (2013). www.resecound.com
- RfD (2012). Årsrapport 2012.
- Rosinski, K. (2013). Interview with HumanBridge for nordic textile projects
- Røde Kors (2013). Genbrug, <http://www.rodekors.dk/det+gor+vi/genbrug>
- SKAT (2013). Momsfritagelse for velgørenhed og almennytte,
http://www.skat.dk/SKAT.aspx?old=204533&chk=201194&tree=expand&_suid=137215370819905870428978319333#SKAT.aspx?old=16864&chk=201194&tree=expand&_suid=1372838189977024954315948236005
- Skov, L., Larsen, F. & Netter, S. (2011). Kommissionsgenbrug: imellem nyt og gammelt, Creative Commons, http://openarchive.cbs.dk/bitstream/handle/10398/8280/59-LS-FLSN-Kommissionsgenbrug_imellem%20nyt%20og%20gammeltx.pdf?sequence=1
- Spútnik Retro store (2013). Personal communication
- Sundt, P., Skogesal, O., Syversen, F., Kaysen, O. (2013). Resource efficient recycling of plastic and textile waste. Nordic Council of Ministers.
- Swedish environmental code, 15:1. , 1998:808.
- Swedish Tax Agency (2013). Allmännyttiga föreningar – ideella föreningar, <http://www.skatteverket.se/foretagorganisationer/forforeningarstiftelser/ideellaforeningar/driva/allmannyttigaforeningar.4.70ac421612e2a997f85800029958.html>
- Sundin K. (2013). Personal communication with Karin Sundin, project manager, Municipality of Stockholm. 2013-10-10.
- Tojo, N., Kogg, B., Kiørboe, N., Kjær, B. and Aalto, K. (2012). Prevention of textile waste – material flows of textiles in three Nordic countries and suggestions on policy instruments, TemaNord 2012:545, Nordic Council of Ministers, <http://www.norden.org/da/publikationer/publikationer/2012-545>
- Torring, M. (2010). Stena Recycling on textile.
- Trasborg (2013). Verdens Børn, <http://www.trasborg.dk/da/newPage24.html>

UFF Finland (2012). Vuosikertomus 2011, Annual report 2011 (in Finnish)
UFF Finland (2013). Brief in English, <http://www.uff.fi/brief-in-english.php> and
Vaatekeräys <http://www.uff.fi/vaatekerays.php>
UFF Norge (2013). Miljørapport UFF fra Folk til Folk, Mai 2013
Statistics Norway (2013). National waste statistics for Norway, [https://www.ssb.no/
statistikbanken/](https://www.ssb.no/statistikbanken/)

Literature review of the traceability of global textile flows

By Maria Elander, Nikola Kjørboe and David Palm

1. Introduction

1.1 Background

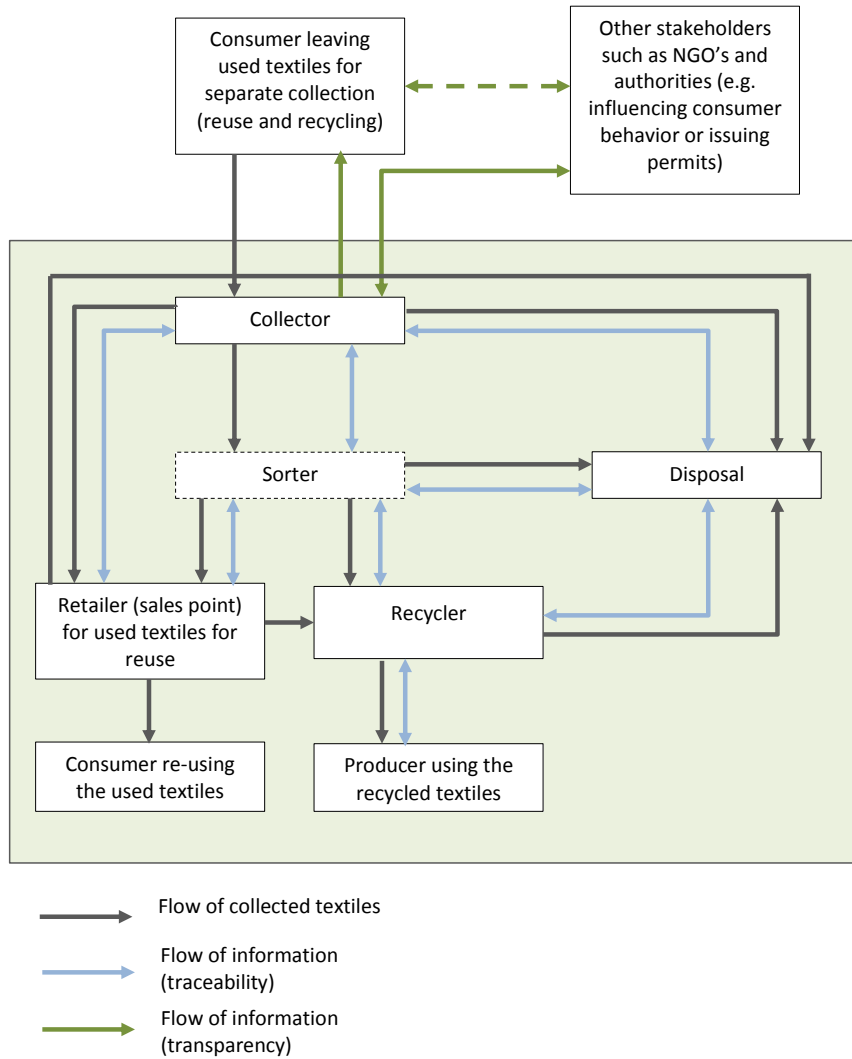
Traceability of product and waste flows on a global level is inherently complicated due to the large number of actors and differences in transparency and regulatory frameworks. This is especially true for textiles both in production and in the second hand parts of the value chain with its complex networks of suppliers.

A big challenge for stakeholders in the early parts of the value chain for used textiles, e.g. collectors, is to secure an ethical handling throughout the whole value chain. This is necessary in order to secure a high level of credibility and confidence from consumers as well as from authorities. The consumers are asked to collect their used textiles separately. This is an additional effort compared to discarding their used textiles with the mixed household waste. In order to increase the willingness to undertake this additional effort, the consumers must be confident that the used textiles are used for what they expect them to. In order to avoid scandals regarding collected used textiles also municipalities issuing permits for the collection of used textiles want to secure that the collected textiles end up where they are supposed to. Transparency towards stakeholders helps securing high levels of credibility and confidence (see Figure 1).

The collectors of used textiles, as well as producers that claim to have a functioning take-back system, lose their credibility and reputation if there is something illegitimate happening to the collected textiles further down in the value chain. Illegitimate practices in the value chain cause a significant threat for collectors as consumers might choose not to give their used textiles to a collector with bad reputation. This threat is potentially even bigger for charitable organizations, since their business models usually rely upon ethical values and a high level of credibility. In order to get an overview of where the collected textiles end up and what they are used for, the collector needs traceability of the used textiles throughout the value chain; i.e. where the used textiles are treated, in what fractions they are sorted, what proportions are reused and recycled etc. (see Figure 1). This includes, for example, information about where and how the collected textiles are sorted and where and

how the collected textiles are reused and recycled. The collectors decide if they want to communicate this information, adding to their transparency towards stakeholders.

Figure 1. Main flow of information (traceability and transparency) within the value chain for used textiles



1.2 Objective

Within the project, a mapping of global and Nordic textile flows including quantitative data and estimations has been performed by the means of a literature review and contacts with textile importers, charitable organisations and recycling companies.

The objective of was to:

- create a general overview of global textile flows (with focus on textile flows to and from the Nordic Region),
- highlight where quantitative and qualitative information of the textile flows is missing and
- indicate the need of improved traceability and transparency of textile flows.

This document is one of four sub-reports that summarize the work from the first year of the Nordic Council of Ministers project *The Nordic textile reuse and recycling commitment*.

The project is one of six that constitute *Resource Efficient Recycling of Plastic and Textile Waste*, which was launched by the Nordic Waste Group (NWG) as part of the Nordic Prime Ministers' green growth initiative, *The Nordic Region – leading in green growth*. Read more in the web magazine *Green Growth the Nordic Way* at www.nordicway.org, or at www.norden.org/greengrowth

2. General overview of global textile flows

2.1 Global trade flows of textiles and textile products

In 2011 global exports of textiles and clothing was worth EUR 536 bn⁷ (WTO 2012). The market has been experiencing tremendous growth, and increased by 17% in 2011 alone. The top ten exporters each registered 13% growth or more. China reported an increase in exports of both textiles and clothing by more than 20%. The order for the top ten exporters remains the same as in 2010, with China, EU-27 as the notable leaders of both household textile and clothing exports (WTO 2012a).

Table 1 Leading exporters of textiles (2011) in bn Euro and percentage, based on Table II.64

	Value			Share in world ex-ports/imports			Annual percentage change		
	2011	1980	1990	2000	2011	2005–11	2009	2010	2011
Exporters									
China ^a	72	3.5	5.3	7.9	24.4	15	-8	28	23
European Union (27)	58	-	-	27.8	19.8	1	-23	8	13
extra-EU (27) exports	18	-	-	7.7	6.1	3	-22	10	14
India	11	1.8	1.6	2.7	3.9	10	-12	41	17
United States	10	5.2	3.7	5.4	3.6	2	-20	23	13
Korea, Republic of	9	3.1	4.4	6.2	3.2	3	-12	20	13
Hong Kong, China	9	-	-	-	-	-3	-19	13	0
domestic exports	0	1.3	1.6	0.6	0.1	-17	-29	-10	-19
re-exports	8	-	-	-	-	-3	-18	14	0
Taipei, Chinese	8	2.4	4.5	5.8	2.9	2	-15	23	13
Turkey	8	0.5	1.0	1.8	2.8	7	-18	16	20
Pakistan	7	1.2	1.9	2.2	2.4	4	-9	21	16
Japan	6	7.1	4.3	3.4	2.1	3	-17	16	13
Top	208	26.0	28.2	64,0	65.0				

Source: WTO (2012a).

⁷ 1 bn = 1,000,000,000

Table 2 Leading exporters of clothing (2011) in bn Euro and percentage, based on Table II.69

	Value	Share in world exports/imports				Annual percentage change			
	2011	1980	1990	2000	2011	2005–11	2009	2010	2011
Exporters									
China ^a	117	3.0	6.8	13.9	28.3	13	-11	21	18
European Union (27)	88	-	-	21.6	21.4	5	-15	2	16
extra-EU (27) exports	21	-	-	5.0	5.2	7	-22	2	26
Hong Kong, China	19	-	-	-	-	-2	-18	5	2
domestic exports	0	8.7	6.5	3.8	0.1	-39	-80	-28	-14
re-exports	18	-	-	-	-	3	-11	6	2
Bangladesh ^b	15	0.0	0.5	1.9	3.7	19	15	25	27
India	11	1.3	1.8	2.3	2.6	9	9	-6	28
Turkey	11	0.2	2.3	2.5	2.6	3	-15	10	9
Viet Nam	10	...	...	0.7	2.4	19	-2	22	27
Indonesia	6	0.2	1.2	1.8	1.5	8	-6	15	18
United States	4	2.4	1.8	3.3	1.0	1	-6	12	12
Mexico ^a	4	0.0	0.4	3.3	0.9	-7	-16	6	6
Top 10	303	15.8	21.3	55.2	64.4				

Source: WTO (2012a).

The European Union and the United States are the major global markets for imports of textiles and clothing, accounting for 27%⁸ and 8% respectively of world imports of textiles, and for 44%⁹ and 21% respectively of world imports of clothing (WTO 2012a).

Table 3 Leading importers of textiles (2011) in bn Euro and percentage, based on Table II.64

	Value	Share in world exports/imports				Annual percentage change			
	2011	1980	1990	2000	2011	2005–11	2009	2010	2011
Importers									
European Union (27)	64	-	-	26.6	20.5	3	-22	11	14
extra-EU (27) imports	24	-	-	7.5	7.6	6	-19	18	16
United States	19	3.4	4.7	7.4	6.2	2	-17	22	8
China ^{a,b}	14	1.5	3.7	6.0	4.6	3	-8	18	7
Hong Kong, China	8	-	-	-	-	-4	-19	13	-2
retained imports	...	...	...	...	...	...	...	...	...
Japan	7	2.3	2.9	2.3	2.2	8	-3	7	28
Viet Nam	7	...	...	0.6	2.1	17	-4	29	23
Turkey	6	0.1	0.4	1.0	1.8	9	-16	39	16
Mexico ^{a,c}	4	0.2	0.7	2.7	1.4	-1	-22	23	14
Korea, Republic of	4	0.5	1.4	1.6	1.4	8	-14	37	17
Indonesia	4	0.3	0.6	0.6	1.4	40	-14	50	34
Bangladesh ^d	4	0.1	0.3	0.6	1.4	15	-6	58	24
Top 10	142	8.4	14.7	49.5	44.6				

Source: WTO (2012a).

⁸ The trade between Member States and partner countries that are not members of the European Union (the extra-EU27 imports) are 10 % of the global exports.

⁹ The trade between Member States and partner countries that are not members of the European Union (the extra-EU27 imports) are 23 % of the global exports.

Table 4 Leading importers of clothing (2011) in bn Euro and percentage, based on Table II.69

	Value	Share in world exports/imports				Annual percentage change			
	2011	1980	1990	2000	2011	2005–11	2009	2010	2011
Importers									
European Union (27)	64	-	-	26.6	20.5	3	-22	11	14
extra-EU (27) import	24	-	-	7.5	7.6	6	-19	18	16
United States	19	3.4	4.7	7.4	6.2	2	-17	22	8
China ^{a,b}	14	1.5	3.7	6.0	4.6	3	-8	18	7
Hong Kong, China	8	-	-	-	-	-4	-19	13	-2
retained imports	...	...	...	...	...	...	...	...	...
Japan	7	2.3	2.9	2.3	2.2	8	-3	7	28
Viet Nam	7	...	...	0.6	2.1	17	-4	29	23
Turkey	6	0.1	0.4	1.0	1.8	9	-16	39	16
Mexico ^{a,c}	4	0.2	0.7	2.7	1.4	-1	-22	23	14
Korea, Republic of	4	0.5	1.4	1.6	1.4	8	-14	37	17
Indonesia	4	0.3	0.6	0.6	1.4	40	-14	50	34
Bangladesh ^d	4	0.1	0.3	0.6	1.4	15	-6	58	24
Top 10	142	8.4	14.7	49.5	44.6				

^a: Includes significant shipments through processing zones

^b: In 2011, China reported imports of textiles from China amounting to \$3.0 billion. For further information, see the Metadata.

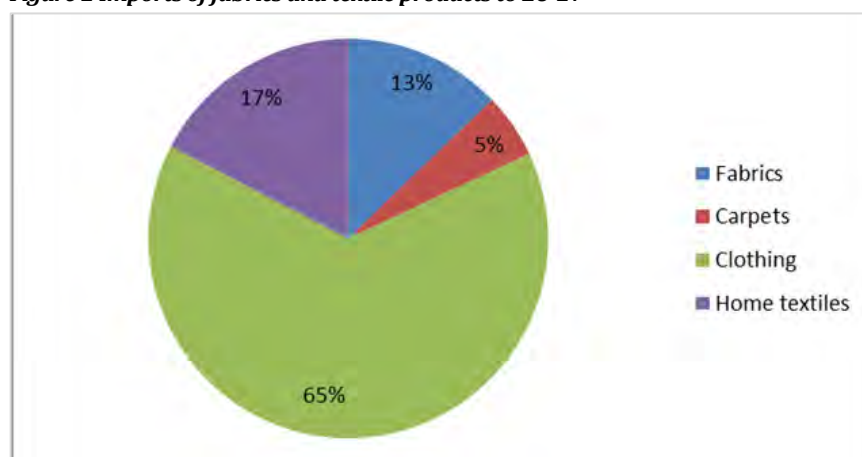
^c: Imports are valued f.o.b.

^d: Includes Secretariat estimates.

Source: WTO (2012a).

Around 80% of the import of textile products to the EU-27 comes from Asia, from China and India in particular. Close to 14% comes from the rest of Europe while around 5% is imported from Africa (Eurostat 2013). Most of these products are imported as clothing (65%) while 17% is household textiles and 13% is fabrics. The rest is imported as carpets (ibid).

Figure 2 Imports of fabrics and textile products to EU-27



Source: Eurostat (2013).

2.2 Global trade flows of used textiles and used textile products

The flows of used clothing (second-hand garments) link the developed and the developing parts of the world via an integrated and complex market. The global trade in used textiles has expanded hugely in both its economic power and global scope. The estimated value of the global trade in second-hand garments has almost doubled in just half a decade from EUR 1.53 bn in 2007 to EUR 2.76 bn in 2012 (UN 2013). These statistics are based on declared exports and imports they are not likely to be fully representative of the true volumes and values being traded, since significant amounts are expected to be traded without being declared (Norris 2012).

With respect to clothing, the trade in used clothing in general represents only a small proportion of the total global trade in clothing. But in e.g. many sub-Saharan African countries trade in used clothing is a dominant feature of the clothing market (more than 30% of the total value of imports and much more than 50% in terms of volume) (Baden & Barber 2005). According to the Bureau of International Recycling, more than 80% of the population in many African countries dress themselves in second-hand clothing (BIR 2013). Largest registered world importers of used textiles are however the Russian Federation, Pakistan, Malaysia, Ukraine and Canada (UN 2013).

Used textiles¹⁰ are mostly exported from the wealthier countries of Europe and in North-America. In 2012 the United States was the world's largest exporter in terms of value, followed by the United Kingdom, Germany, rep. of Korea and the Netherlands (UN 2013). The better graded used clothes collected in North-America are mostly exported to Central American countries and the lower graded clothing is shipped to Eastern Europe, Africa and Asia (Hansen 2006).

In 2012 EU-27 imported close to 89 m tonnes of used textiles worth of EUR 81 m., whilst exporting 1.15 bn. tonnes of used textile worth a bit more than EUR 1 bn. (UN 2013). Textiles collected in Europe are mainly exported to Pakistan, Poland, the Netherlands, Ukraine and Tunisia (Eurostat 2013). Used and new rags are mainly exported to India, Germany, France, UK and Russia (ibid).

¹⁰ In this context we use the broad term "used textiles" to cover the HS-definition in the UN's Comtrade database "Worn clothing and other worn articles" (HS as reported 630900).

Table 5 Main countries receiving export of used clothing and rags from EU-27 in 100kgs

Export of worn clothing (a) from EU-27	
Pakistan	1,447,597
Poland	1,332,736
Netherlands	1,028,611
Ukraine	877,269
Tunisia	802,845
Cameroon	715,951
Export of used or new rags (b) from EU-27	
India	285,389
Germany (incl. DD from 1991)	231,043
France	107,772
United Kingdom	100,544
Russian Federation (Russia)	91,975
Spain	89,036

(a): Worn clothing and clothing accessories, blankets and travelling rugs, household linen and articles for interior furnishing, of all types of textile materials, incl. all types of footwear and headgear, showing signs of appreciable wear and presented in bulk or in bales, sacks or similar packings (excl. carpets, other floor coverings and tapestries).

(b): Used or new rags, scrap twine, cordage, rope and cables and worn-out articles thereof, of textile materials, sorted.

Source: Eurostat (2013).

2.3 Global markets for recycling of used textiles

The textiles which are not suitable for reuse might be suitable for recycling. In Europe recycling mostly comprises down cycling with uses such as cutting into rags, filing for car-seats, insulation etc. A few mechanical and chemical processes for recycling of fibres have been developed and are in use with the aim of creating new fibres, but there are still obstacles to overcome before these technologies can be implemented on a wider scale. The market for recycling of textiles is thus yet immature. There is a market for recycling of pure polyester but the European market for cotton and blended fibres that can't be recycled mostly comprises the down cycling options mentioned above. Canada is considered an important player, and many now consider Toronto to be the world's used clothes capital with numerous sorters and recyclers (BIR 2013a).

Panipat in north India is now the world's largest (mechanical) textile recycling hub, which sources its materials from the international used clothing market. Panipat has over 300 mills producing shoddy ("regenerated") yarn from recycled fibres, which is woven into poor quality cloth and blankets for the domestic market (85%) and for export (15%). Panipat supplies over 90% of the shoddy-wool relief blankets bought by international aid agencies for use in global disasters (Norris 2012). In general the output from the recycling facilities located outside Europe

and North America is perceived to be lower, than the one which is produced in western countries (ibid). The used textiles imports to India are not always damaged or low-quality textiles as is usually assumed and/or claimed, but unsurprisingly they include those for which no more profitable market can be found by commercial rag dealers (ibid).

Chemical recycling is an alternative option to the mechanical recycling and Japanese Teijin which is one of the leading material producers in Japan, has established a recycling system, named Eco Circle, for polyester produced and sold by the Teijin. As of 2011 they have more than 150 members both within and outside of Japan (Tojo *et al.* 2012). The collected pure polyester products go through chemical recycling process and become the material with the same quality as virgin materials produced from oil. There also appears to be a relatively large market for rags cut from used textiles, most commonly used for industrial purposes.

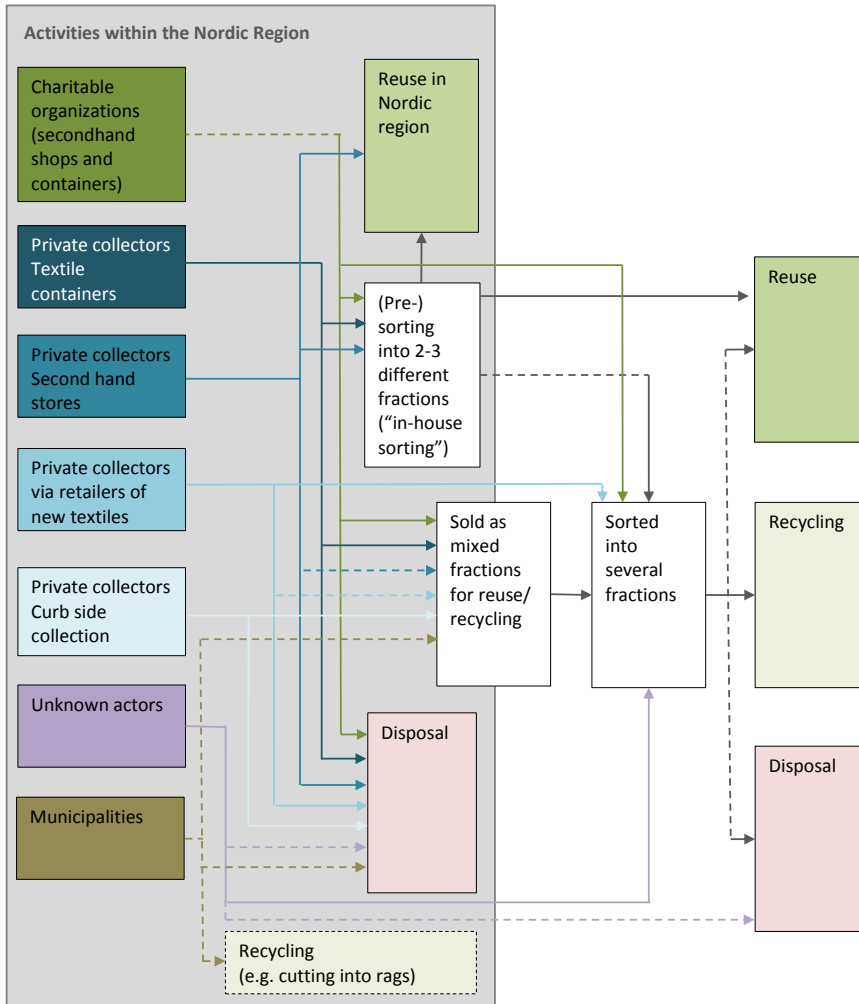
3. The Nordic market for textile, used textiles and textile waste for recycling

The report Mapping of current actors in the collection, sorting, reuse and recycling of used textiles and the management of textile wastes (Kiorbøe *et al.* 2013) generated an overview over the actors for collection, sorting, reuse, recycling and disposal of used textiles on the Nordic market. Additionally, a market survey for used textiles in the Nordic region was carried out within the project “A Nordic strategy for collection, sorting, reuse and recycling of textiles” (Watson *et al.* 2013). Based on this available quantitative and qualitative information, a general overview of the material flows of textiles in the Nordic region was developed. The objective was to identify material flows with different levels of available and reliable information, indicating focus areas for increased traceability and transparency.

3.1 Actors and principal material flows on the Nordic market for used textiles

(Kiorbøe *et al.* 2013) identified a limited number of principal material flows in the Nordic region. These are summarized in Figure 3. The collection is roughly carried out by seven different types of actors: charitable organizations which collect via containers or second hand stores (some do both), private collectors using textile containers for collection, private collectors collecting used textiles directly from households (curb side collection), private collectors collecting the used textiles directly in their second-hand stores, and private collectors collecting via retailers. To some extent, municipalities have started to investigate and enter collection systems for used textiles themselves, but the corresponding material flow is still very small in the Nordic region. In addition, unknown actors collect used textiles by stealing or using “anonymous” textile containers without permits. There is also often a lack of systematic regulations for collection both on public and private land.

Figure 3 Principal material flows for used textiles collected in the Nordic region



Most charitable collectors on the Nordic market (at least partly) sort the collected textiles into a limited number of textile fractions suitable for reuse and recycling, often not more than two or three. Typically the collected textiles are sorted into one fraction with textiles suitable for reuse on the Nordic market, one fraction with textiles suitable for reuse in other countries and one mixed fraction with textiles for recycling. In some cases the sorting only differentiates between textiles suitable for reuse on the Nordic market and a mixed fraction with textiles suitable for reuse in other countries and recycling. During this basic sorting, a small fraction of the used textiles is often regarded as (“unsellable”) textile (or other types of) wastes, that is sent to disposal (most often incineration). The mixed fractions with textiles for reuse and for recy-

cling and textiles for recycling are generally sold for more differentiated sorting and subsequent reuse and recycling outside the Nordic market. Some of the private collectors behave very similarly to the charitable collectors and collect via containers and/or secondhand stores. There are however also a few private curbside collectors and private collectors (e.g. I:CO and KICI) who ally with retailers for new textiles in order to collect used textiles. These textiles are most likely to send the textiles directly to sorting abroad, without separating the textiles which could be useful for reuse in the Nordic region first.

3.2 Textile flows to and from the Nordic region

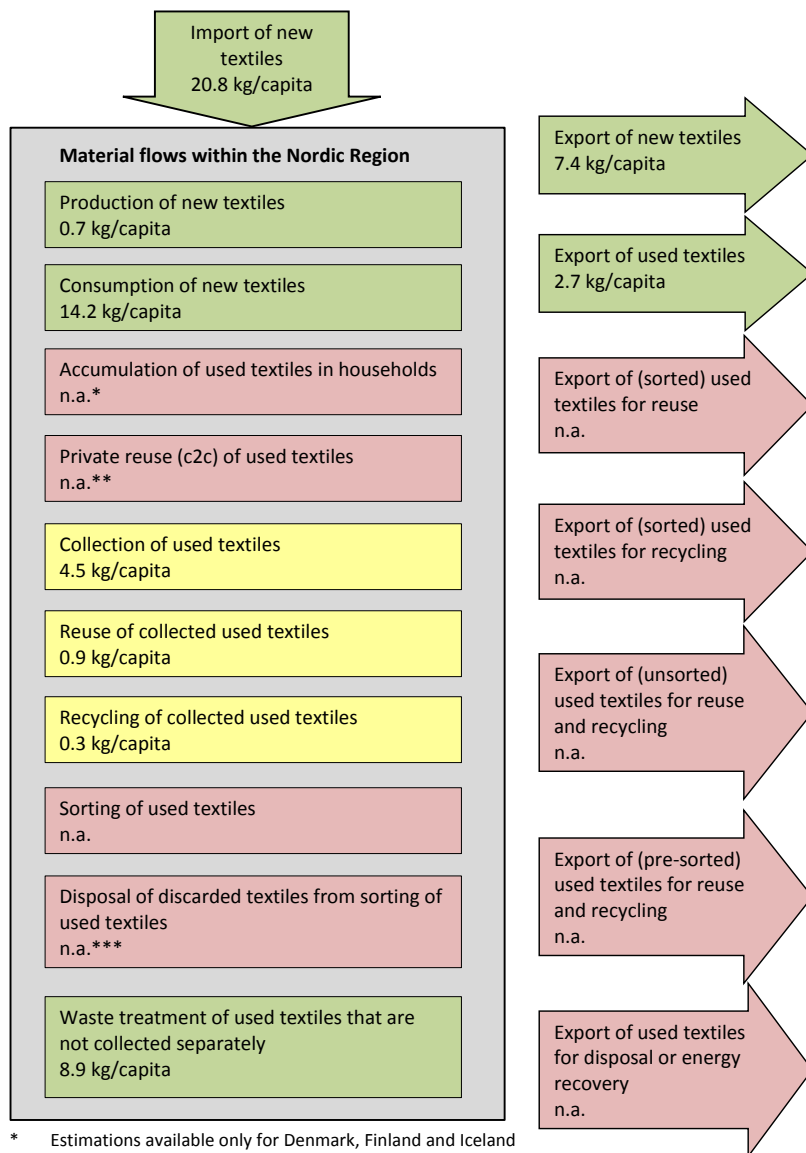
Figure 4 indicates quantitative textile flows to and from the Nordic region based on the information collected in Kiorbøe *et al.* (2013) as well as Watson *et al.* (2013). The different colors indicate different levels of available information regarding the textile volumes. Green boxes indicate that data and information is available or good estimations can be carried out. Yellow boxes indicate that some data or information is available and that reasonable estimations can be carried out. Red boxes indicate that no, little or very uncertain data or information is available and that no reasonable estimations can be carried out.

The imported and exported volumes of new textiles to and from the Nordic region are well known due to the trade statistics. These data do not include imports for personal use (e.g. cross-border online consumption), but these amounts are assumed to be relatively small. Additionally, data is available regarding production and consumption of new textiles in the Nordic countries respectively.

Good data is available regarding the amounts of used textiles that are exported from the Nordic region. However, information regarding the proportions of these volumes that are sorted/presorted, exported for reuse and/or recycling and exported for disposal or energy recovery is lacking.

The volumes of separately collected, reused and recycled used textiles within the Nordic region are (at least partly) relatively well known or can relatively well be estimated. Data regarding the volumes of used textiles that are sorted within the Nordic region and the amounts of used textiles that are discarded in these sorting processes are only partly available. Good information is available alternatively good estimations can be made regarding the waste treatment of used textiles that are not collected separately, but discarded with the mixed household waste.

Figure 4 Quantitative textile flows to and from the Nordic region and indication of data availability based on information collected in



(Kiorbøe et al. 2013).

4. Information and traceability

A great number of both large and small stakeholders are operating on the market for new and used textiles. The markets are not only marked by operators working with different agendas, but are further reflected by the fact that there is a large group of informal and/or illegitimate actors. These and other factors makes the information and traceability of textiles somewhat challenging. It is therefore important to become more specific on what data are and are not available, why these data are missing, what consequences the lack of data might lead to, and how it might be possible to change the current situation in the Nordic region.

4.1 Data and trade flows of new textiles

International trade with textile products is registered in various international trade statistics, and thus relatively easily retrieved. As can be seen in Figure 4 above, it is clear that data of *import*, *production*, *consumption* and *export* of new textile products to and from the Nordic region are also relatively easily collected from the national statistics centres as well as the international trade statistics. The data on new products are all reported regularly by the relevant actors, and is therefore perceived as giving a representative picture. The traceability of products upstream in the supply chain is however somewhat challenged by the high number of actors operating in the textile production chain and the fact that a large proportion of the production is taking place in less developed countries, which are assumed to have lower levels of traceability and transparency than the level expected and experienced in the Nordic region. Since there in general are problems with transparency in the product chain, an increasing number of (Nordic) designers/producers are putting considerable effort into ensuring the credibility and transparency of their suppliers (see e.g. Krüger *et al.* 2012; Gardetti and Torres 2013).

4.2 Data and trade flows of used textiles

4.2.1 *Import and export*

Retrieving data of used textiles on both a national, Nordic and a global level is more challenging than for new textiles. *Import* and *export* of used textiles is registered in national and international statistics, and must thus be expected to be of a relatively good quality. These statistics are however based on *declared* exports and imports and are thus not likely to be fully representative of the true volumes and values being traded, since significant amounts are expected to be traded without being declared (Norris 2012). Another current weakness in the trade statistics, is the missing information about state and quality of the used textiles that are exported (e.g. pre-sorted fraction, mixed fraction, suitable for reuse, suitable for reuse and/or recycling etc.) and for what purpose they are exported (e.g. sorting, reuse, recycling). Of those collectors who work with buyers of used textiles (i.e. sorters and/or recycling facilities), it is only a handful of them who cooperate with a regular group of buyers and only few of these buyers seem to have proper measures of how the textiles are being handled (i.e. what they are used for, where this takes place and under what conditions). There is thus very little knowledge of the destinies of used textiles once they leave the borders of the exporting country.

4.2.2 *Collection, sorting, re-use, recycling and disposal*

Although there are no requirements to report on these data, *collection*, *re-use* and *recycling* of used textiles within the Nordic region is fairly well estimated (see Figure 4). This is probably due to the fact that most collectors base their business model on collecting textiles, and that the data thus provide them with a valuable insight to their core business. The data are thus expected to be known by the different operators, but are not necessarily revealed.

The *collection*, *re-use* and *disposal* estimations are most commonly based on estimations by charitable organisations and private collectors. These estimations are based on statements from the largest collectors and smaller amounts might thus be left out of these estimations. In some countries where the business for used textiles is relatively competitive and closed, there might be different incentives to either over- or understate the various measures. In other countries the markets seem to be more transparent, and estimations might be more correct. However, as

long as the actors are not obliged to provide data on the amounts they collect and sell for re-use in the Nordic countries, there is no immediate incentive to reveal these data to the public. Larger charitable organisations might however see an advantage in doing so, in order to maintain credibility with the public, whereas other smaller collectors might not have the resources (or the communication channels) to provide this information.

There is less overview (at least to the public) of the level of *sorting* within as well as outside the Nordic region. *Re-cycling* of the collected material is within the region close to zero and consists of just a few recycling facilities.

4.2.3 Accumulation and private re-use

Data of *accumulation* and *private re-use* (from consumer to consumer) is extremely difficult to estimate. These are data which can only be obtained by making direct contact with individuals (via e.g. surveys), which is considered to be highly resource intensive in terms of time, money, and man-power. The accumulation effect has been estimated for Denmark, Finland and Iceland, but is simply based on qualified estimations (3% in Denmark) or as a residual (in Finland and Iceland). Since there is a limitation to how much textile we can hold in our homes one might argue that the accumulation effect will disappear over time, and should thus be zero, but on the contrary there is also evidence that houses are getting bigger and each person demanding more space, thus also leaving more space for accumulation of textiles.

Similarly the *private re-use* which takes place via direct peer-to-peer exchange (such as via friends and family) and via more formal initiatives such as flea or swap-markets, clothing libraries or commercial second-hand shops, is difficult to estimate. These amounts are being exchanged where there is no (or no declared) money transfer, which makes it impossible to register unless direct contact to privates is made. Rough estimations from Denmark have been given, but it is doubtful whether this estimate paints a complete picture. The private peer-to-peer re-use might however not be crucial to determine in the context of forming a commitment for actors managing used textiles, since these private activities are likely to take place regardless of any commitment.

4.2.4 Waste treatment

Waste treatment of textiles in the Nordic region is also partly registered in national statistics. Waste treatment in general is most commonly well documented, but the textile fraction is usually determined by random samples such as waste bag studies taken from household or mixed wastes. The textile fraction is then retrieved from the general waste statistics (Tojo *et al.* 2012). These types of studies are rather expensive and resource demanding to carry through and are in some cases only seldom being performed. There is also a lack of coherent criteria what to include as textile, which makes data difficult to aggregate (Sundin 2013). The data for textile wastes are thus based on studies and published data, but still leaves a certain level of uncertainty.

4.2.5 Other missing data

In the flows above one (potentially large) group of textiles has not been estimated. *Used textiles from the business and public sectors* like linen, towels and other household-like textiles from hotels, hospitals and institutions as well as uniforms from all sorts of organisations like transport companies, police, fire departments, security companies, craftsmen etc. These textiles could potentially be interesting in terms of re-use and/or recycling, since they constitute a relatively large and homogenous group of textiles with high quality which could be relatively easy to collect.

In the Danish flow these amounts have been taken into account. For the uniforms an estimation based on some British measures has been made (Danish EPA forthcoming). For the business laundries (which have most of the hospital and hotel textiles such as linen, towels etc. in Denmark) a rather low estimation has been provided. There is however indications that a lot of these used textiles are being exported without being registered.¹¹ For the other countries in the Nordic region no data or estimations have been made.

¹¹ One of the larger Danish laundries has reported that a Dutch recycling company provided them with a container and picked it up whenever it was full, without any financial transactions involved (this could be taken as an indication that there is some value to these used textiles).

4.3 Consequences of lacking information

The project pinpoints specific areas where information is poor or missing as regards to flows of used textiles. This lack of information has different consequences on different levels.

4.3.1 National/regional level

On a national or regional (e.g. Nordic) level, lacking information about used textile flows makes it difficult to develop and measure quantitative goals and targets and to measure the effect of policy instruments for increasing collection, reuse and recycling of used textiles.

Lack of information regarding quantities and treatment of used textiles also makes it difficult to estimate potential environmental, economic and social effects within the system as well as from changes in the system. It is not possible to quantify – or even estimate – the environmental impacts of used textiles if it is not known what qualities and amounts of textiles are treated as well as in what way and for what purpose they are treated (e.g. reuse, recycling, incineration or landfill). The lack of information might also hinder investments that increase efficiency in the handling of used textile flows within individual countries as well as in the Nordic region (e.g. sorting and/or bundling certain used textiles in order to get fractions with higher quality and value). If it is not known where, how and under what conditions the used textiles are treated and potentially reused, it is not possible to address any (possibly problematic) social aspects in the handling of used textiles (e.g. social employment standards etc.).

The lack of information of used textile flows that are collected and handled by illegitimate actors might cause a barrier for taking action against them. If the extent and implications of the problem is unknown, it is less likely that the illegal collection and export of used textiles are given priority by the competent authorities.

4.3.2 Business level: Collection and treatment

The information gap between businesses which generate used textiles and/or textile waste on one hand and collectors on the other might result in large amounts of used textiles are incinerated and landfilled instead of reused and recycled. Businesses and public bodies potentially generating single large flows of used textiles and/or textile wastes are not always aware of the (economic as well as environmental) potentials

for reuse and recycling of their textiles. As a result, the waste flows are often sent to incineration or landfill “out of habit” or convenience. Examples of such businesses and public bodies are textile producers, hotels, restaurants, companies using uniforms and/or working clothes, military, hospitals, prisons etc. Collectors might to large extent lack information where single large commercial textile waste flows (potentially of very high quality) arise.

The collectors in the Nordic region in general only (pre-) sort the collected textiles into a very limited number of fractions. Single textile flows with high potential for high quality recycling (e.g. bed linen or towels) are not always recognized as such or – due to small individual flows by the collectors – are not separated from other mixed textile fractions. In order to sell a specific high quality textile fraction on the global market the collector usually has to have a whole container of the material. To collect these volumes of specific textile fractions usually takes time and require increased storage capacities, which many collectors are lacking. Increased availability of information regarding used textile flows (e.g. collected amounts, quality of the collected textiles, recycling potentials, reuse markets etc.) might serve as an initiator for collectors to try to bundle specific textile flows enabling them to treat these flows in a more efficient way.

The generally perceived lack of traceability of used textiles has made some individual collectors develop their own measures of increasing information regarding the treatment of the collected textiles. Such measures might include sending collected material only to a limited number of recyclers, formulating minimum standards for treatment of the collected textiles as well as for reporting (traceability) etc. These initiatives are very important as they illustrate the potential and practicability of quality standards and voluntary initiatives. There is, however, a risk that different sets of individual standards and initiatives with different levels of ambition develop in parallel rather than in a coordinated way that would increase the overall impact of such initiatives.

4.3.3 Consumer level: Collection and consumption

The lack of traceability and transparency (in combination with scandals) regarding used textile flows decreases credibility for the collectors and, as a result, potentially decreases the commitment and willingness of private consumers to collect and pass on their used textiles to collectors. The separate collection constitutes an extra effort for the consumers. In case they do not have the feeling that the separate collection of used

textiles is carried out in an efficient and legitimate way with an added social or environmental value, they might consider it not worth the effort and instead throwing the used textiles with the mixed household waste. This would result in reduced amounts of collected used textiles. Although not within the scope of this project, it might be added that increased information about the environmental and social implications of the reuse of textiles might increase consumers' willingness to buy used textiles instead of new textiles.

4.4 Possibilities for increasing creation/collection of data

One challenge with respect to the lack of data for used textiles is that they practically fall between the two categories "products" and "waste". Both categories are quite well registered in national and international trade and waste statistics, although the validity of especially the waste data can be discussed.

Whereas there seems to be a consensus that available data regarding used textiles are deficient and/or of low quality, only limited interest in improving data and quality of data has been paid in the past. As countries increasingly consider specific targets for textiles and textile wastes this might change.¹²

There are different aspects to consider in the process of collection and improvement of data regarding new and used textiles.

4.4.1 Data regarding new textiles

As discussed in sections 3.2 and 4.1 the data for import, production and export of new textiles are fairly good or at least allow fairly good estimations. However, some statistics are expressed in pieces and others in tonnes. It would be recommendable to express the data for new textiles both in pieces and in tonnes in order to lower the uncertainties in the data. This would also enable a good estimation of average weight of different textiles that might be useful in the data collection regarding used textiles.

¹² One example from the Nordic region: The Swedish Environmental Protection Agency is investigating a target for textiles and textile wastes including measures and policy options needed to reach this target on behalf of the Swedish Government (Swedish EPA, 2013).

4.4.2 Data regarding used textiles

General definitions

In order to be able to collect, aggregate and use data regarding used textiles from the different countries within the Nordic region, there is a need to increase compatibility of the data collected. This includes reporting data in a predefined form. The scope should be evident (i.e. what is included in the data and what is not) and not allow any doubt as regard to what data to collect.

Where estimations are necessary (e.g. average weight of different pieces of clothing, accumulation of textiles in households etc.), these should as far as possible be made using the same methodology in all countries. At the same time the methodology for making estimations must be flexible enough to allow necessary adjustments due to varying conditions in different countries.

It could be considered to develop a short guidance on how to collect and report data. Examples of areas where definitions and standardized reporting could be useful are (not concluding list):

- All flows in kg or ton.
- Average weight of different types of textiles (e.g. bed linen, t-shirt, trousers, curtains etc.).
- Definition of different types of collection, e.g. collection by:
 - a) charitable organisations using textile containers
 - b) charitable organisations collecting in stores
 - c) charitable organisations using textile containers and collection in stores
 - d) charitable organisations collecting in households
 - e) private companies using textile containers
 - f) private companies collecting in stores
 - g) private companies via retailers of new textiles
 - h) private companies using curb side collection
 - i) municipalities using textile containers
 - j) municipalities using curb side collection
 - k) unknown actors (including e.g. theft and other illegitimate actors).
- Definition of reuse, e.g. reuse on:
 - a) the national and/or Nordic market
 - b) other markets.

- Definition of recycling, e.g. on:
 - a) the national and/or Nordic market
 - b) other markets.
- Definition of different fractions of used textiles for export, e.g.:
 - a) original (not sorted) mixed fraction
 - b) pre-sorted fraction for reuse
 - c) pre-sorted fraction for reuse and recycling (potentially including a smaller part for disposal)
 - d) pre-sorted fraction for recycling (potentially including a smaller part for energy recovery and/or disposal)
 - e) pre-sorted fraction for recycling (potentially including a larger part for energy recovery and/or disposal).

Generation of used textiles

There is still a lack of information where used textiles that are suitable for reuse or recycling are generated. A large part of the generated used textiles, i.e. the transformation from being a product (e.g. new t-shirt) to being a piece of used textile (e.g. used t-shirt) is taking place in the households. This makes it very difficult and/or resource demanding to obtain data. Results from regular analyses of mixed household wastes together with estimations of internet trade, sale in consignment and private second hand stores and separately collected volumes of used textiles might give a reasonable indication of the used textiles generated in households.

The number of institutions and private businesses that generate used textiles (e.g. bed linen, uniforms etc.) is considerably lower. However, less data seem to be available regarding generated volumes of used textiles from these actors. The identification of public institutions and private businesses that generate large volumes of used textiles therefore requires further analysis. Such an analysis could, however, reveal new potentials for efficient reuse and recycling since these used textiles are assumed to be more homogenous than used textiles from households, potentially of high quality and can be collected from a limited number of actors.

Collection and treatment of used textiles

A way of increasing transparency and traceability is to introduce mandatory permits for collectors of used textiles. For collectors needing a permit for the collection of used textiles (e.g. charitable organisations and private companies using textile containers or collecting via curb side collection), reporting requirements can be prescribed as a part of the permit. Such reporting requirements *could* e.g. include information and data on:

- amounts of collected used textiles (mandatory weighing)
- amounts of (pre-)sorted used textiles (mandatory weighing of the different fractions)
- amounts of reused used textiles on the national/Nordic market (e.g. based on estimations regarding “sell quota” of the used textiles sorted out for reuse on the national/Nordic market)
- amounts of recycled used textiles on the national/Nordic market (mandatory weighing)
- amounts of used textiles exported for reuse (mandatory weighing)
- amounts of used textiles exported for reuse and recycling (potentially including a smaller part for disposal) (mandatory weighing)
- amounts of used textiles exported for recycling (potentially including a smaller part for energy recovery and/or disposal) (mandatory weighing)
- amounts of used textiles exported for recycling (potentially including a larger part for energy recovery and/or disposal) (mandatory weighing).

Municipalities collecting used textiles could be asked to report similarly.

It is regarded unlikely that mandatory reporting will be applied for private companies collecting in stores and via retailers of new textiles. However, efforts can be carried out that these companies report this data voluntarily.

The potential analysis of public institutions and private businesses that generate large volumes of used textiles mentioned in 4.3.2 could include estimations regarding collected amounts and treatment of generated used textiles. Analyses might also be carried out regarding the volumes of used textiles that are reused via internet trade, flea markets and second-hand stores.

5. References

- Baden, S. & Barber, C. (2005). *The impact of the second-hand clothing trade on developing countries*, Oxfam, <http://policy-practice.oxfam.org.uk/publications/the-impact-of-the-second-hand-clothing-trade-on-developing-countries-112464>
- BIR (2013): Textiles, <http://www.bir.org/industry/textiles/>
- Danish EPA (forthcoming). *Fremme af affaldsforebyggelse og øget genanvendelse i tekstilbranchen*, Unpublished report by the Danish EPA
- Eurostat (2013): EU27 Trade Since 1988 By CN8 [DS-016890], extracted on 28.08.13, http://epp.eurostat.ec.europa.eu/portal/page/portal/international_trade/data/database
- Gardetti and Torres (Eds.) (2013). *Sustainability in Fashion and Textiles, Values, Design*, Production and Consumption, Greenleaf Publishing, UK.
- Hansen, K. (2006). *Secondhand Clothing*, Berg Encyclopedia of World Dress and Fashion, Volume 10 – Global Perspectives, Part 4: Fashion Worldwide <http://www.bergfashionlibrary.com/staticfiles/Encyclopedia/Secondhand-Clothing-Global-Fashion.pdf>
- Kiorbøe, N., Watson, D., Elander, M., Lyng, K.-A., Gíslason S., Palm, D (2013). The Nordic textile reuse and recycling commitment. Mapping of current actors in the collection, sorting, reuse and recycling of used textiles and the management of textile wastes. Temanord report for the Nordic Council of Ministers. Not published.
- Krüger, H., Plannthin, D., Dahl, E. H. and Hjort, T. (2012). *Guidelines II – A handbook on sustainable fashion*, <http://fashionguidelines.dk/>
- Norris, L. (2012). *Recycling imported secondhand textiles in the shoddy mills in Panipat, India: an overview of the industry, its local impact and implications for the UK trade*, A research summary by Lucy Norris, Department of Anthropology, UCL, February 22, 2012, <http://www.wornclothing.co.uk/wp-content/uploads/2011/01/SummaryShoddy.pdf>
- Sundin K. (2013). *Personal communication with Karin Sundin, project manager*, Municipality of Stockholm. 2013-10-10
- Swedish Environmental Protection Agency. (2013). *Tillsammans vinner vi på ett giftfritt och resurseffektivt samhälle: Sveriges program för att förebygga avfall 2014-2017*. Swedish EPA. Stockholm. 2013.
- Tojo, N., Kogg, B., Kjørboe, N., Kjær, B. and Aalto, K. (2012). *Prevention of textile waste – material flows of textiles in three Nordic countries and suggestions on policy instruments*, TemaNord 2012:545, Nordic Council of Ministers, <http://www.norden.org/da/publikationer/publikationer/2012-545>
- UN (2013). *Comtrade Explorer Statistics*, Classification: HS2007, Commodity: 630900 (worn clothing and other worn articles, Year: 2012, <http://comtrade.un.org/db/ce/ceDefault.aspx>
- Watson, D., Kiorbøe, N., Elander, M., Salmenperä, H., Lyng, K.-A., Gíslason, S. (2013). A Nordic strategy for collection, sorting, reuse and recycling of textiles. International Market Survey. Temanord report for the Nordic Council of Ministers. (not published).
- WRAP (2012). *Valuing our Clothes*, <http://www.wrap.org.uk/sites/files/wrap/VoC%20FINAL%20online%202012%2007%2011.pdf>

WTO (2012). International Trade Statistics 2012 – *II Merchandise Trade, Key developments: a snapshot*, http://www.wto.org/english/res_e/statis_e/its2012_e/its12_highlights2_e.pdf

WTO (2012a). International trade statistics – Merchandise trade, Tables II.62-II.71 http://www.wto.org/english/res_e/statis_e/its2012_e/its12_merch_trade_product_e.htm

**Definition and documentation
of operational and best practice
standards in the collection,
sorting, reuse and recycling of
used textiles and the
management of textile wastes**

By Maria Elander, David Watson and Stefán Gíslason

Glossary

BSI	British Standards Institution
bvse	German Association for Secondary Raw Materials and Waste Management
CoC	Code of Conduct
CoP	Code of Practice
CSR	Corporate Social Responsibility
EEE	Electrical and Electronic Equipment
EPR	Extended Producer Responsibility
GRS	Global Recycle Standard
NCM	Nordic Council of Ministers
NGO	Non-governmental Organisation
PAS	Publicly Available Specification
PRS	Product Specific Requirements
R&D	Research and Development
T4RI	Textiles for Recycling Initiative
TLC	Clothing, linen and footwear (in the French EPR system for clothing, linen and footwear)
TRA	UK Textile Recycling Association
UK	United Kingdom
WEEE	Waste Electrical and Electronic Equipment
WRAP	Waste & Resources Action Program

1. Introduction

Actors involved in collection, reuse and recycling of used textiles increasingly experience questions from the public, from authorities as well as from partners and consumers regarding how they work and how handle used textiles. Different actors have recognised the general lack of transparency and traceability in the handling of used textiles as a threat to their credibility and/or their business models. As a result, companies and organisations have developed a number of different quality standards, ethical rules and initiatives for transparency within their corporate social responsibility (CSR) work.

This task within the project *The Nordic textile reuse and recycling commitment* funded by the Nordic Council of Ministers (NCM) aims at identifying best practice and investigating possible combinations and improvements to achieve higher environmental and social standards as well as more transparency and traceability for used textiles. The objective is to support and secure a good environmental and social handling of these textiles in line with the waste hierarchy.

The examples identified are not limited to the Nordic region, but include initiatives and standards from the EU and other regions. The analysis includes standards for other product groups that are considered to having transferrable elements that might be of interest for the collection and handling (including export) of used textiles.

This document is one of four sub-reports that summarize the work from the first year of *The Nordic textile reuse and recycling commitment*.

The project is one of six that constitute *Resource Efficient Recycling of Plastic and Textile Waste*, which was launched by the Nordic Waste Group (NWG) as part of the Nordic Prime Ministers' green growth initiative, *The Nordic Region – leading in green growth*. Read more in the web magazine *Green Growth the Nordic Way* at www.nordicway.org, or at www.norden.org/greengrowth

This document contains a list of identified examples divided into:

- Regulatory requirements.
- Standards and certification schemes for (used) textiles.
- Standards and certification schemes for other (used) products.
- Voluntary initiatives.

Interesting aspects of the identified examples are summarised in section 8 (Synthesis of requirements in the identified examples).

Information has been gathered via internet and literature surveys, interviews with external experts (including members of the reference group) and knowledge of the project partners involved in this task.

2. Lacking credibility as obstacle to the increased collection of used textiles

Actors involved in the collection and handling of used textiles to some extent experience larger problems with lacking credibility towards the public and customers than actors collecting other kinds of materials for reuse and recycling such as glass and paper (Rosinski, 2013). This is a result of different aspects; one being a general lack of transparency in the field. In addition, recurring scandals regarding collection of used textiles, an increasing number of illegitimate actors collecting and handling used textiles as well as a lack of implementation and control by competent authorities is perceived to lower the credibility of the entire sector.

The challenges with lacking credibility can be summarised into four different areas (Rosinski, 2013):

2.1 Issues regarding the handling of the collected used textiles

There might a lack of transparency for what purpose used textiles are collected. This includes a lack of information on how used textiles are sorted, reused, recycled and disposed of as well as where the potential reuse and recycling is carried out (within the country, the Nordic region, EU or elsewhere). Many consumers often donate their used textiles with the intention that they should be reused or donated to people in need, but have no possibility of knowing that this is where their used textiles actually end up. This lack of information might lead to decreased credibility for the collector and, as a result, might decrease the willingness of consumers to separate their used textiles from their mixed household waste as well as the willingness of authorities to grant permission for collection of used textiles.

2.2 Operational issues regarding the collection of used textiles

Some municipalities had bad experiences with the collection of used textiles. Potential problems are increased littering around textile containers and that full textile containers are not emptied by the collectors on a regular basis. In these cases the municipalities are less likely to grant permission for separate collection of used textiles.

2.3 Moral and social issues regarding the profits made by the collected used textiles

Another obstacle for used textiles collectors are doubts among citizens over whether the profits made from the used textiles are used for charity or not. Citizens often do not only want to get rid of their used textiles, but also want to make sure that these textiles are used for a good cause – either directly as charity in form of second-hand clothing or indirectly as charity in monetary form from the revenues raised from the sale of the used textiles. This wish to donate clothes for a good cause is sometimes (actively) misused by some actors implying charitable motivations but in fact operating for private profit. This results in decreased credibility of the whole sector and decreased willingness of citizens to collect their used textiles separately.

2.4 General aspects (not necessarily typical for the used textiles sector)

Many companies work with some sort of code of conduct. These generally include aspects that are not directly linked to used textiles. They can include commitments *not* to work with partners that use child labour, do not allow workers to organise themselves in unions, work without permits, or don't comply with existing (social and environmental) legislation etc. These aspects are also relevant for the credibility of actors involved in the collection and handling of used textiles – particularly for actors that to some extent export used textiles outside of the Nordic region.

3. Different types of initiatives for improved environmental and social performance in the handling of used textiles

Three different types of initiatives for improved environmental and social performance as well as for increased transparency and traceability regarding the handling of used textiles were identified. These types are described very shortly in this section. The examples identified in this task are divided between these (rather coarse) types in sections 4, 5, 6 and 7 of this report.

3.1 Regulatory requirements

Authorities and regulative bodies can improve environmental and social performance of used textiles flows by incorporating some of these aspects in regulations and permits regarding the collection and handling of used textiles. These requirements are then binding and sanctions can be directly imposed in case of non-compliance. The requirements can address many different areas such as for example reporting, modes and frequency of collection, minimum requirements on sorting and reuse etc.

3.2 Standards and certification

According to the British Standards Institution “Standardisation is the activity of establishing agreed criteria that provide a reliable basis on which common expectations can be shared regarding specific characteristics of a product (including a service) or a process.” (British Standards Institution, 2012).

A standard is a document that provides requirements, specifications, guidelines or characteristics that can be used consistently to ensure that materials, products, processes and services are fit for their purpose (ISO,

2013). Working according to acknowledged standards can help companies and organisations to communicate to customers that their products or the way of handling these products are safe, efficient and environmentally friendly. It might also serve as an instrument for increasing transparency and traceability.

A certification is the written confirmation that a product, service or system meets specific requirements – for example requirements laid down in standards. Certificates are acquired after controls carried out by independent and authorised bodies. There are different reasons for companies and organisations to certify themselves according to standards. This might for example be a contractual or regulatory requirement.

3.3 Voluntary agreements and initiatives

In some cases companies and organisations choose to develop their own requirements on quality and performance by formulating and committing themselves to act according to voluntary agreements or initiatives. Such agreements can be agreed upon by a group of companies (or a sector) as well by individual companies and organisations. Typically this happens when an actor or a group of actors identify an area where relevant standards and regulation are lacking and performance varies significantly between different actors. Formulating and acting according to voluntary agreements might help actors that perform better than average (e.g. in terms of quality and transparency) to differentiate themselves from other actors in the area and communicate this to customers and authorities.

4. Examples of regulatory requirements

This section covers two examples of regulatory requirements for improved transparency and traceability in the collection and handling of used textiles.

The schematic figures in the beginning of each example indicate what parts of the value chain of textile products are affected by the requirements (those marked in blue). The production step in the figures refers to production of new textiles, the use step to use of new and used textiles and the remaining steps to used textiles.

4.1 Extended Producer Responsibility for clothing, linen and footwear (France)



The only country found in Nordic countries or the EU to have regulations concerning the handling of used textiles is France. The regulations cover the setting up of a mandatory Extended Producer Responsibility (EPR) system for clothing, linen and footwear (abbreviated to TLC in French).

The regulatory requirements were introduced by Article L-541-10-31¹³ of the Code de l'Environnement at the end of 2006 and supported by later regulations (Articles D. 543-214¹⁴ and D. 543-224).¹⁵ The require-

¹³<http://www.legifrance.gouv.fr/affichCodeArticle.do?cidTexte=LEGITEXT000006074220&idArticle=LEGIARTI000006834459&dateTexte=&categorieLien=cid>

¹⁴<http://www.legifrance.gouv.fr/affichCodeArticle.do?idArticle=LEGIARTI000022743402&cidTexte=LEGITEXT000006074220>

ments made French companies which produce and/or import clothing, linen and footwear responsible by law for ensuring reuse and recycling of their products at the end of their usage. The objectives were to ensure an increased collection, reuse and recycling of these products, contribute to R&D on new methods for recycling and provide employment for long term unemployed and disabled citizens.

The regulations apply to all producers of clothing, linen and footwear located in France and producing for the French market, as well as importers of these products to France. A full definition of the scope of products included is given in an appendix to the regulations (Ministère de l'Écologie, de l'Énergie, du Développement, 2008). These companies can either organise their own reuse and recycling program that must be approved by the French authorities or contribute financially to an organisation accredited by the authorities to provide for them. The regulations also set out conditions under which such an organisation can be accredited. Currently only one organisation has been accredited – a non-profit private company, Eco TLC, directed by a board of industry representatives.

Identified requirements

The regulations along with the official approval document from March 2009 accrediting the Eco TLC, outline requirements which Eco TLC, and the operators which it supports, should meet (Ministère de l'Écologie, de l'Énergie, du Développement, 2008) (Ministère de l'Écologie, de l'Énergie, du Développement Durable et de l'Aménagement du Territoire, 2009). They also define how producers and importers should financially contribute to the system.

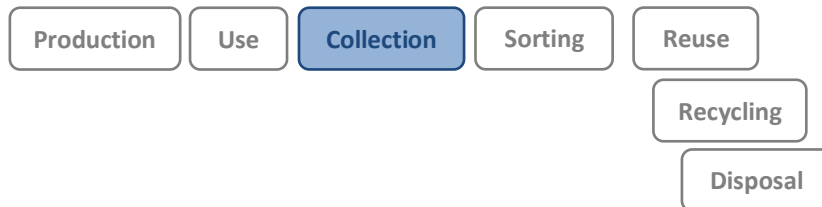
The requirements include the following:

- All producers and importers of the defined goods (i.e. clothing, linen and footwear) for the French market should organise the collection, reuse and recycling of the goods themselves or pay a fee to Eco TLC according to the total weight or total number of articles they sell on the French market.
- The fee should be reduced for articles which have been awarded a recognised Eco-label such as the EU Flower. Rebates should also be given for articles which include a minimum of 15% recycled material.

¹⁵<http://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000020428691&dateTexte=&categorieLien=id>

- Eco TLC should strive to meet long term targets for collection and reuse and recycling. These targets are to be continually reviewed. The original target specific in 2009 agreement was for 50% by weight of TLC put on the market to be separately collected and sorted, with minimum 70% of this to be reused or recycled. A 90% reuse and recycling target is currently under discussion.
- To meet these targets Eco TLC may provide financial support to sorting companies. Such financial support will only be given if
 - a) sorters ensure traceability of the used articles they are sorting upstream and downstream
 - b) sorters show that those collecting the used articles which they subsequently sort have received approval from local authorities or private landowners where they have set up collection points
 - c) sorters show that the collectors also accept *all* TLC which can not only be reused but also recycled
 - d) a minimum of 15% (by working hours) of those employed by sorters are from groups experiencing difficulties with employment.
- To meet the targets Eco TLC should work in partnerships with local authorities and waste collectors on public information campaigns to encourage delivery of used TLC to registered collectors and must support these campaigns financially.
- Registered collectors must accept all articles of defined TLC also those that can't be reused.
- Eco TLC must report annually on
 - a) the total contributions from producers and importers
 - b) the relative employment of those who have had difficulty with finding work
 - c) total quantities of TLC collected and sorted
 - d) the quantities that have been reused, recycled, incinerated or landfilled. Where sorted TLC has been exported, the report should name each receiving country, the quantity and the end fate of the TLC in that country.

4.2 Swedish Fundraising Control's requirements on charitable organisations (Sweden)



Collectors that use textile containers to collect used textiles from consumers need a permit to set up the textile container on public land. In some cases the municipality granting the permit requires that the collector possesses a so called “90 account,” although this is not a per se legal requirement. A “90 account” is an account that only charitable organisations approved by the non-profit organisation Swedish Fundraising Control [Svensk Insamlingskontroll] possess (Svensk Insamlingskontroll, 2013).

The “90 account” is not limited to charitable organisations that collect textiles and does not include any requirements specific to the collection and handling of used textiles. The objective of the “90 account” is to assure the public that donated money and the revenues from collected items (such as used textiles) are used for the purpose stated by the collector. In order to get and be able to use a “90 account”, the organisation must fulfil the requirements by the Swedish Fundraising Control. Some of these include:

- The “90 account” must not be used for fundraising for any aims other than those approved by the Swedish Fundraising Control.
- Suitable individuals who are knowledgeable as regards economic matters are to be responsible for the fundraising work and other economic issues.
- Marketing must be ethical and economically defensible; in particular, controllable fundraising forms must be used and advertisements and other information must be trustworthy.
- Fundraising operation must not be burdened by unreasonable costs.
- Received funds must be used for the stated aim or in accordance with the donor’s wishes, and must benefit the aim without unnecessary cost.

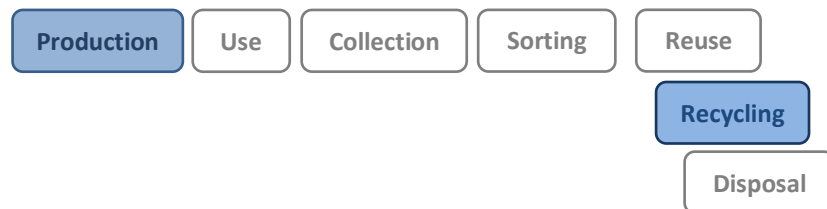
(Svensk Insamlingskontroll, 2013)

5. Examples of standards and certification schemes for textiles

This section covers six examples of different examples regarding standards and certification schemes for textiles.

The schematic figures in the beginning of each example indicate what parts of the value chain (those marked in blue) of textile products are affected by the requirements. The production step in the figures refers to production of new textile products, the use step to use of new and used textiles and the remaining steps to used textiles.

5.1 Global Recycle Standard (international)



The Global Recycle Standard (GRS) was developed by Control Union and launched in 2008. It is aimed at providing third party assurance of claims made by producers concerning the recycled content of their products. In addition environmental and social criteria have been incorporated into the standard under request from leading members of the textile industry (Global Recycle Standard, 2012). Although the standard is inspired by the need to substantiate claims in the textile industry, producers of products of any type with recycled content can also apply for certification under the standard (Control Union, 2013). The standard is available to companies anywhere in the world.

Control Union is currently the only approved third party certifying body for the GRS. Administration of the GRS was taken over by the Textile Exchange in 2011, who is currently in the process of producing an

updated GRS. An International Working Group of certification bodies (including Control Union, ICEA, IMO, Intertek and SCS Global Services) has been created to develop the revised standard (Control Union, 2013). These bodies would be expected to become approved certifiers of the new standard.

Identified requirements

The GRS applies to the full supply chain in the production of products i.e. from cradle to final sale. The standard may apply to companies that trade and/or produce end products or intermediate products containing recycled material.

Full traceability of material flows in supply chains is a core element of the standard. Companies who outsource production partially or completely must ensure that their suppliers also comply with the standard.

The standard includes the following traceability principles:

- Certified companies are obliged to maintain a documented GRS system plan that describes the processes, including the points of risks and a flow diagram.
- Raw materials originating from verifiable governmental or private recycling initiatives that have documentation to show that an external audit has taken place are permitted as inputs into the certified system. These products may be declared as GRS worthy materials.
- Producers and/or collectors of the GRS worthy raw material have an obligation to collect *and* verify a written declaration from suppliers.
- Upon receipt of GRS-certified products or raw materials the company must inspect the quantity and quality of the materials and provide a report of this inspection.

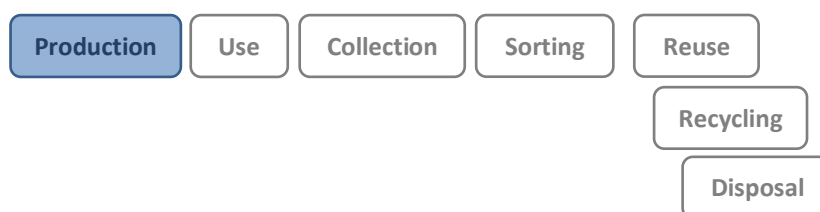
There are additional criteria related to transport and documentation etc. All criteria can be viewed in the full description of the standard (Global Recycle Standard, 2012).

The standard also incorporates criteria for environmental management which include the need to develop a manual which outlines responsibilities and procedures to minimise and monitor waste and discharges, plus an obligation to keep full records of actual water use and discharges. The standard also includes a set of social criteria including criteria on workers' rights and health and safety conditions.

An external certifying body ensures that all the criteria included in the standard are upheld. This is confirmed through viewing of documentation plus site visits which must be carried out at least once a year. The certifying bodies retain the right to carry out surprise inspections.

Products which have been produced under a value chain certified under the GRS, and which include a minimum of 5% recycled material, may include a label on the product to this effect. The label must specify the share of pre-consumer and post-consumer recycled material and include the name of the certifying body and a certification reference. It may also include the GRS logo.

5.2 R Cert by Redress (international)



The R Cert is a certification scheme providing third party assurance that a new article of clothing contains a minimum 20% of recycled fibres supplied by the factory's own pre-consumer waste (i.e. not used textiles). The scheme was launched in 2012 by the Hong Kong based NGO Redress who's objective is to encourage more sustainable activities by the fashion industry.

The aim of the certification scheme is to counter green-washing in the fashion industry concerning false claims over the use of recycled fibres in new products. It guarantees that factories included in the production chain of branded products recycle the textile wastes generated in their own factories back into new products. A further aim of the scheme is to ensure that the supply chain is fully traceable and can also be accessed by purchasers of the products (Redress Limited, 2013b). At the point of retail the product is accompanied by a label giving a QR code which can be scanned by consumers with smart phones. By inputting this code into a checkpoint on Redress's website the consumer can view the material supply chain for the product.

The certification scheme is global. Esprit was the first brand to gain certification for one of its collections in 2012 and have since followed with a further collection (Redress, 2013a). A number of other brands are

currently seeking certification for one or more of their products (Redress Limited, 2013b).

Identified requirements

The certificate covers the production stage of textile products including waste produced in factories. Brands seeking to gain the certificate must firstly ensure that their supply chains have a current Global Recycle Standard (see section 5.1). This third party assured standard ensures that the factories have a track and trace system in place for all their fibre inputs.

Using the track and trace system in place, Redress checks that the brand's factories are recycling the waste developed on-site into new products. This waste includes off-cuts, ends of rolls and unsold clothing. This type of waste is normally referred to as pre-consumer waste. The waste is sorted by colour and fibre type. It is then shredded and blended with virgin fibres. This whole process must be fully documented and *may* be checked by Redress through site visits.

The R Cert can only be awarded to products that are made from a minimum of 20% recycled pre-consumer waste as documented by the track and trace system operated by the brand and its factories.

5.3 Draft Re-use Standard (UK)



During September 2013 – November 2013, Waste and Resources Action Programme (WRAP) ran a public consultation on a draft generic Re-use Standard.

The draft *Re-use Standard 2013 for the Collection, Processing and Dispatch of Products or components for Re-use* (WRAP, 2013) takes the form of a generic standard for organisations operating within different product groups. One of the proposed product groups for consultation was textiles including clothing, household linen and carpets.

The Re-use Standard would aim to assure consumers of the quality and functionality of products sold for reuse. It would contribute to building up consumer confidence in the purchase of second-hand goods and thus aid in the development and growth of the re-use sector.

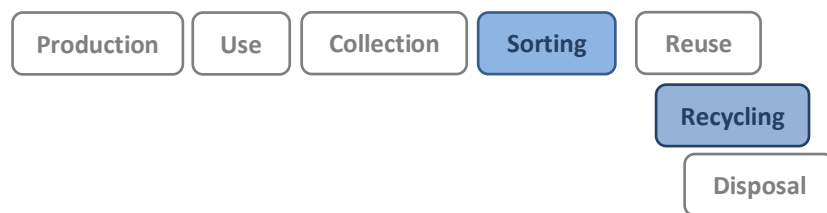
The draft standard sent out to consultation was commissioned by WRAP and authored by Oakdene Hollins and produced by a Technical Advisory Group comprising UK stakeholders from across the re-use sector covering Governments, public bodies; commercial and charitable re-use operators as well as waste and resource management companies. The consultation was aimed at these stakeholders, customers and operators in the supply chain as well as producers for re-use products and components (The Recycler, 2013a). It is important to note that the standard may be altered significantly following this consultation.

The draft standard does not aim to address technical product specifications but rather establishes a generic set of criteria and processing requirements for operators working with all ten proposed product groups where the products are deemed to be suitable for re-use.

The draft standard cover all stages from collection to sale to the second user. For textiles, specifically draft requirements to consider may include:

- Collection and delivery.
- Inspection and repair.
- Cleaning, storage and dispatch.
- Product reuse.

5.4 Specification of the UK Textile Recycling Association for textiles derived from charity shops (UK)



The UK Textile Recycling Association (TRA) in consultation with the Charity Retail Association has published guidelines for textiles derived from charity shops in the UK that are unsuitable for sale at charity shops and are subsequently sold to the re-use and recycling trade.

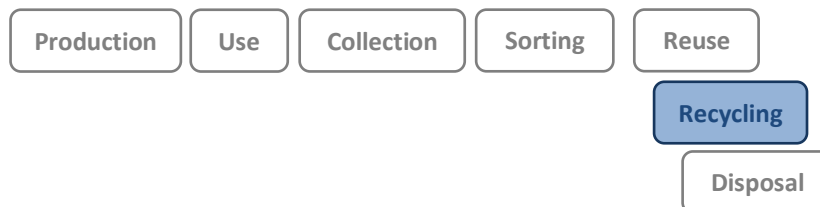
The specifications are intended to tackle the problem where articles sold/donated to textile recyclers have included items which are not fit for recycling and must subsequently be sent by the recycling companies to landfill. The objective of the guidelines is to ensure that this waste is removed at source and not sent on to recyclers.

Identified requirements

The guidelines specify what should be included in bags for collection by recyclers and how they should be packaged. They include the following requirements:

- Used clothing and household textiles picked up from charity shops should be donated from UK sources, not from imported clothing brought into UK by the charity, from landfill sites /rummage sales or suppliers of uniforms.
- The bags should contain mixed UK donated clothing and household textiles. Only wearable paired shoes left over after retail sales from the charity shops are accepted.
- All clothing and household textiles should be clean and dry, and should exclude pillows, cushions, duvets, carpets, balls and cones of wool, offcuts from manufacturing process and unfinished garments, hard toys, books and bric-a-brac, coat hangers, sharp objects and single odd shoes.
- The standard quality should reflect all the categories of all items after the charity has removed the donated clothing and household textiles that it can retail to the general public through its shop(s). Unless previously agreed with the merchant, the goods should not be pre-sorted with sections removed for sale separately.
- Used textiles should be packed in water-resistant sacks (for example polythene) at a weight convenient for shop handling, storage and collection, usually 8–10 kg. Alternative packing methods (e.g. hessian sacks supplied by the merchant) can be specifically agreed if regarded more suitable.
- Used clothing, curtains and bedding, shoes and handbags should all be packed separately.
- Charity shoes should all be paired (tied together or fastened with an elastic band).

5.5 British Standard 7033-2 for cleaning and polishing cloths derived from used textiles (UK)



Part 2 of the British Standard 7033 on Cleaning and Polishing Cloths defines standards for industrial wipers produced from textiles waste. These were prepared by the Textiles and Clothing Standards Committee of British Standards.

The aim of Part 2 of BS 7033 is to aid in the harmonisation of the industry and to give purchasers confidence that the product is suitable for the stated industrial purpose. The standard also includes definitions and minimum requirements for three types of waste yarn which can be used for cleaning machinery or transferring lubricants to machinery.

The standard is principally for use in the UK.

Identified requirements

The standard defines seven types and grades of wipers. These must not exceed given maximum moisture content for each grade, maximum soluble chlorine content and maximum extractable content (i.e. impurities that can be washed out of the wiper) and not fall under given minimum shares of fibres for each grade. Methodologies are also given for how these qualities should be measured (Recycling and Waste World, 2013).

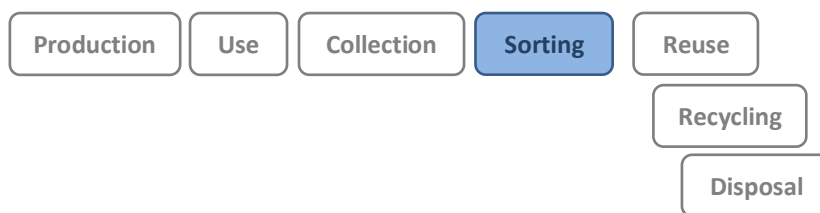
In addition all wipers must comply with the following requirements:

- All wipers shall be derived from such sources as discarded garments, domestic fabrics and remnants of new fabrics (where wipers have been cut from whole garments the latter should have been cut and opened to produce flat panels. Pockets should have been completely opened for cutting).
- Wipers shall contain no seams consisting of more than three thickness of fabric.
- Wipers shall be free from buttons, fittings, stiffeners and the contents of the pockets.

- Wipers shall be free from metals, plastics and other potentially abrasive or electrically conductive materials.
- The area of each wiper shall be not less than 1,000 cm².
- The width of each wiper shall be not less than 25 cm at any point.
- The mass per unit area shall be greater than 70g/m² but not exceeding 200g/m² for lightweight wipers; greater than 200g/m² but not exceeding 300g/m² for medium-weight, and; greater than 300g/m² for heavyweight wipers.
- White cotton wipers under wiper grades W1 and W2 shall not include cloths which have been bleached, or which have become tinted from other cloths.

(Recycling and Waste World, 2013)

5.6 Beoordelingsgrondslag Gecertificeerd Textielsorteerproces by TÜV Rheinland (Belgium, Germany and the Netherlands)



The standard “Beoordelingsgrondslag Geoptimaliseerd Textielsorteerproces” for operators of sorting facilities was developed in cooperation between the Netherlands based Boer Group, Wieland Textiles and TÜV Rheinland, which is the formal owner of the standard and responsible for an annual audit of the certified operations. The first certificates were issued by TÜV Rheinland Nederland in April 2010 to Gebotex BV, Euro Used Clothing BV, Marbo Recycling BV and Wieland Textiles BV.

At present, the standard is in use in the Netherlands (Wieland Textiles, a few of the companies within the Boer Group and some more), in Belgium (with holding companies in the Netherlands) and in Germany (SOEX, Wolfen). However, it is not limited to this geographical area, but open for certification by TÜV Rheinland in other countries as well. Currently, in total 22 sorting companies are certified. So far, the standard only covers the sorting part of the chain. (TÜV-Rheinland, 2013).

The main reason for the introduction of the standard was the fact that a proportion of collected textiles were transported unsorted to Eastern Europe. There, only the best garments were sorted out for reuse and recycling, while the rest was dumped or landfilled.

Experiences with the standard are good. The quality of management is increasing, as well as the amount of reused clothing / recyclable material. The certification has already had a widespread impact. The standard gives the participating businesses a competitive advantage as the certificate is a criterion for Dutch municipal authorities in selecting new textile collectors. (Boer Group, 2013).

Identified requirements

The main requirements of the standard include:

- Accurate monitoring of incoming and outgoing material, production qualities per day and of warehouse stock.
- Complete sorting process.
- Accounting statement that all incoming goods are sorted.
- Traceable suppliers and clients.
- Legally employed employees.
- Up-to-date Risk Assessment and Evaluation.
- Emergency response team.
- Diversity of products.
- All waste being processed in the region (waste incinerator with energy recovery in the case of disposal).

(TÜV-Rheinland, 2013)

The main shortcoming is, however, that the system so far is only applicable to sorting companies. TÜV Rheinland is therefore working together with the Textile Recycling Association (VHT), which is the Dutch business organisation for the textile recycling industry, to set up a more comprehensive system for the whole branch from the collector onwards. This will entail that all the incoming material is free of waste that the highest possible proportion of it is reused and recyclable material is recovered from the remainder. The new certificate will also focus on compliance with law, accountability of goods and chain responsibility. VHT will vote on a proposal in December 2013 and an introduction of the new version is planned for the beginning of 2014. (TÜV-Rheinland, 2013).

6. Examples of standards and certification schemes for other products

This section covers two examples regarding standards and certification schemes for the collection and handling of other products than textiles. The standards are considered to include aspects that might be transferable to used textiles.

The schematic figures in the beginning of each example indicate what parts of the value chain (those marked in blue) of textile products are affected by the requirements. The production step in the figures refers to production of new textiles, the use step to use of new and used textiles and the remaining steps to used textiles.

6.1 Introduction to PAS Standards (UK)

A PAS (Publicly Available Specification) is a consultative document where the development process and written format is based on the British Standard model and therefore closely resembles a British Standard in structure and format. A PAS, however, has a different development model. It can be developed by organisations other than the British Standards Institute for use in the UK.

The PAS approach offers an effective means of quickly introducing standardisation and can sometimes be considered as a precursor to a more formalised British Standard. While a British Standard must reach full consensus between all stakeholders on technical content, a PAS invites inputs from stakeholders but does not necessarily incorporate these into the final standard. Thus, development times for a PAS standard can be shorter, typically around 8 months. A PAS is intended for unrestricted use within any markets for which it is relevant (BSI Standards Publication, 2012).

PASs have been developed for a large number of products since its introduction in the early 1990s. More recently several PAS have been developed by Waste and Recycling Action Program (WRAP) UK for second-

ary products emerging from waste and for used products prepared for reuse. The first WRAP PAS was issued in 2002. PAS have been developed for compost and recovered glass, paper, wood, tyres, electrical and electronic goods and gypsum. PAS have also been developed for operations as well as products: e.g. good practice in collection of used products and preparation for recycling.

No PAS has yet been developed for textiles prepared for reuse or for materials extracted from used textiles. For illustration purposes for this report two PAS have been selected. The first is PAS 141 on post-consumer electrical and electronic goods, which serves as an illustration of standards on post-consumer goods intended for reuse. The second is PAS 105 on paper recovered from paper waste, which serves as an illustration of a code of practice for operators involved in separate collection, sorting and recycling of a particular waste stream.

6.2 PAS 141 on electrical and electronic equipment (UK)



PAS 141 on the reuse of used electrical and electronic equipment (EEE) and waste electrical and electronic equipment (WEEE) was developed by industry experts working with the UK Department for Business, Innovation and Skills and was launched in 2013. It sets out a framework for the testing, treatment and provision of post-consumer electrical and electronic equipment in the UK.

PAS 141 aims to:

- Assure consumers, retailers and others that post-consumer apparatus is both electrically safe to use and functionally fit for purpose.
- Assure the original producers and users of the equipment that their safety liabilities and reputation will be protected by re-use

organisations using documented safety tests, removing confidential data and keeping records to demonstrate this.

- Allow legitimate exports to be differentiated from illegal exports of WEEE under the guise of being sent abroad for re-use, by providing assurance that appropriate testing of equipment has taken place and allowing for a certificate to act as proof that products are genuinely for re-use (WRAP, 2011).

PAS 141 is designed for use by any organisation of any size who prepares equipment for re-use. This includes charity organisations. It is designed for use in the UK. However, significant overseas interest has reportedly been expressed and continues to grow, and PAS 141 is being considered by the EU Standards Committee as the basis for a European-wide standard for reuse (The Recycler, 2013b).

Once an organisation's process has been certified it will appear on a list of certified bodies. Since the PAS has only recently been launched no organisations have yet received certification.

Certification is awarded by an accredited third party certification body. There are currently two of these in the UK. Organisations who prepare post-consumer EEE for reuse must pay a fee to cover the costs of certification.

Identified requirements

The certification covers the testing and preparation of post-consumer electronic and electrical equipment for reuse. This includes electrical safety and functionality tests and removal of data from the previous users. It does not cover collection for reuse nor the subsequent distribution, although the certificate applied to all EEE that have been through the certified process, aids in the subsequent distribution by assuring purchasers, exporters etc. that the product is well-functioning and safe for use.

It is not worth going into detail of the various tests that are carried out since these are not relevant to textiles due to the large difference in product type.

The standard has only recently been launched and has therefore not been subject to any evaluation of its effectiveness.

6.3 PAS 105 Code of practice on collection and recycling of paper (UK)



The PAS 105 Code of Practice on Recovered paper sourcing and quality was developed by prepared by British Standards Institution (BSI) and UK WRAP in consultation with the UK Confederation of Paper Industries, UK Environmental Services Association and the Local Authority Recycling Advisory Committee. It was launched in 2008. The main aim of PAS 105 is to explain the key factors that influence the efficient recycling of recovered paper in order to promote best practice throughout the whole process chain.

PAS 105 is aimed at all private and public organisations along the chain from collection of post-consumer paper waste to production of paper products with recycled content. The PAS has been developed for use by operators in the UK but is presumably also relevant for use by similar operators in other countries. However, users must pay a fee for gaining access to the PAS and can only receive them in hard copy which may reduce the degree to which they have been spread.

Identified requirements

The PAS addresses the chain of post-consumer paper waste including collection via kerbside collectors or at paper banks, processing at transfer stations, distribution to and processing by paper mills and merchants.

The PAS does not include requirements since it is not a certification scheme. Rather it includes recommended best practice at all stages in the chain. Best practice recommendations which have direct relevance to similar operations for textiles are as follows:

Collection at bring sites

- Ensure collection bins and collection vehicles are thoroughly cleaned, dried and free from any contamination.
- Educate users to sort paper effectively and exclude unwanted items.
- Periodically inspect bin contents for contamination such as plastic bags, cardboard, polystyrene, glass, fire damage, food waste, wood, etc.
- Ensure management and operatives understand what should be collected and that any other material could lead to the possibility of the whole load being rejected.
- Place stickers on the lids of the bins stating what should go into the container and what is not suitable (where possible with translation into languages spoken in the areas).
- Keep sites well maintained and attractive so that people are encouraged to visit them.
- Ensure bins are emptied frequently and that they are clearly marked with contact details in the event of problems.
- Ensure bring sites are well lit at night.
- Place bins away from moving traffic routes in supermarket car parks etc.
- Place bins a sensible distance from neighbouring houses.
- Ensure bins are waterproof and lids are shut and secured (locked where possible).

Kerbside collections (from households):

- Specify on which day, collection bins, boxes or sacks are to be placed on the kerbside.
- Make clear to residents which materials are acceptable and which should be avoided.
- Keep instructions simple, use graphics for ease of understanding. Use consistent images and messages in literature and other printed material and amend these in accordance with customer feedback. Frequently remind residents of key messages.
- Ensure collection vehicles are clean.
- Ensure quality requirements are clear to both operatives and management.

- Where bins, boxes or sacks are sorted by operatives, leave unwanted items as a signal to residents of what is not acceptable to the recycling program with a note advising of further sources of information.

Transportation, handling and storage:

- Post collection, the number of times recovered paper is handled, transferred or transported should be kept to a minimum.
- Everyone involved in the transportation, handling and storage should be aware of the implications of contamination.

Communication:

- Information on how to present recycle rates for collection should be relayed to the public regularly and frequently to every household.
- Other information should be given out at specific events throughout the year to reinforce the messages, as well as facts and “how to do booklets” sent out.

7. Examples of voluntary initiatives

This section covers 13 examples regarding voluntary initiatives and agreements for the collection and handling of textiles. The identified examples were initiated by a range of different actors (such as waste companies and organisations, NGOs, charitable organisations).

The schematic figures in the beginning of each example indicate what parts of the value chain (those marked in blue) of textile products are affected by the requirements. The production step in the figures refers to production of new textiles, the use step to use of new and used textiles and the remaining steps to used textiles.

7.1 bvse Quality Label for Textile Recycling (Germany and Europe)



Around 130 companies from Germany and Europe are organised in the Association for Textile Recycling that is a subdivision of the German Association for Secondary Raw Materials and Waste Management (bvse) [Bundesverband Sekundärrohstoffe und Entsorgung e.V.]. Together these companies annually recycle over 750,000 tonnes of textile wastes (bvse, 2013d).

In early 2013 bvse introduced the *bvse Quality Label for Textile Recycling* [bvse-Qualitätssiegel für das Textilrecycling] along with the *bvse Guidelines for Textile Recycling*. The quality label serves as a guarantee that a company is working according to the guidelines. The objectives for the introduction of the quality label and the guidelines were on one hand to enable the bvse members to differentiate themselves from illegal textile collection and on the other hand to serve as guidance for con-

sumers and municipalities regarding textile collection (bvse, 2013c). Currently 29 companies have acquired the quality label (bvse, 2013b).

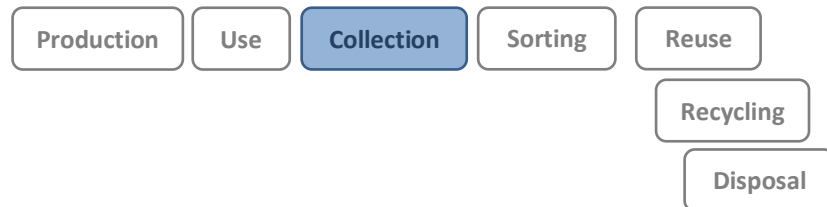
Identified requirements

The *bvse Guidelines for Textile Recycling* include the following requirements:

- Compliance of national and international laws.
- Setting up textile containers only after having achieved a permit for doing so by the competent authority.
- Clear and correct labelling of textile containers (e.g. name and contact of the collector, purpose of the textile collection).
- Assistance of municipalities in the implementation and control of illegal textile collection (e.g. immediate reporting of illegal containers and joint development of future collection concepts).
- Non-acceptance of textiles that originate from illegal collection or textiles with uncertain origin.
- Information about import countries and export paths.
- Sale of textiles within and outside the EU only to sorting companies with professional expertise.
- Implementation of the European five step waste hierarchy (according to 2008/98/EC). Reuse (of clothing) is given the highest priority.
- Recycling of textiles not suitable for reuse according to best available technique.
- Commitment to support a recycling quota for textile wastes above 90%.

(bvse, 2013a)

7.2 TRA Code of Practice for collectors of used textiles (UK)



The UK Textile Recycling Association (TRA) has produced a Code of Practice (CoP) for collectors of used textiles (Textile Recycling Association, 2013b). The CoP differentiates between practice which is required by law, practice considered by the TRA as mandatory for members of the association and non-mandatory best practice.

The most recent CoP was launched in 2013 and is aimed at the 51 members of the Association in the UK.

Identified requirements

In this code a phrase where the word “must” is used it indicates a requirement that is mandatory by UK law. “Ought” indicates a requirement that is mandatory for members while “should” indicates a course of action that is recommended as best practice.

The CoP includes general UK legal duties with respect to health and safety for employees, equal opportunities etc. These are not specified in more detail here since they are not exclusive to the used textile industry. The more industry specific requirements and recommendations include the following:

Charity shop collectors should:

- Ensure collectors are fit and proper persons to collect.
- Ensure that collections are done using liveried vehicles which clearly identify the collection business and provide appropriate contact details.
- Ensure that they uphold all aspects of any agreements that they have with their charity shop partners.
- Seek written agreements with their respective charity shop partners.
- Have scales in their vehicle which can be used to weigh the goods collected before they are taken away from the shop and paid for.
- Collect at the times agreed.

Operators of clothing/textile collection banks:

- *Must* obtain a license from the land owner (or appropriate site management organisation) to place a clothing textile bank at a particular named site.
- *Must*, in the case of banks which are operated for the benefit of charities, indicate the minimum amount of money per tonne collected that goes to charity.
- *Should* provide industry approved design textile bank clearly marked with information identifying.
 - a) service contact details
 - b) the local authority/charity benefiting from the collection
 - c) types of material acceptable for collection in the bank.
- *Should* operate a regular collection timetable which meets the requirements of the landowner.
- *Should* maintain the immediate area surrounding the bank.
- *Should* monitor the sites to ensure collection patterns are adequate.
- *Should* provide accurate records to the beneficiaries and land owners the amount of clothing/textiles collected at each site.

Charitable door-to-door clothing collectors:

- *Must* comply with the 1939 House to House Collections Act (England and Wales).
- *Should* uphold the standards set in the Code of Fundraising Practice for House to House Collections.
- *Should* be mindful of guidance on the licensing of charitable door to door collections of goods.

All door to door clothing collectors' publicity material must:

- State whether the collection will benefit a charity/philanthropic cause, is on behalf of a local authority or whether it is for a commercial purpose only.
- Give the name of any benefitting organisation and if appropriate a registered charity number.
- Give the trading name of the collection organisation.
- Make reference to how funds are being raised for charitable purpose in terms of pounds per tonne.

(Textile Recycling Association, 2013a)

7.3 Donation Drop Box Operator Code of Conduct by SMART (international)



Secondary Materials and Recycled Textiles (SMART) is a recycling-based, international non-profit trade association comprised of nearly 200 used clothing, wiping material and fibre industry companies. SMART has established a Code of Conduct including ethical and moral standards which its members have agreed to uphold and in this way distinguish themselves from other companies in the industry (SMART, 2013a).

SMART members frequently engage in partnerships with charitable organisations, agreeing to provide donation drop boxes and collection services and share in related revenues in exchange for using the charity's name and/or logo on their bins (SMART, 2013b).

Identified requirements

According to the Donation Drop Box Operator Code of Conduct, SMART member donation drop box operators agree to:

- Ensure donation receptacles identify the name and telephone number of the company responsible for maintaining the bin(s).
- Clearly mark donation bins with the names and telephone numbers of the sponsoring organisation and names and contact information (phone number, email address or website URL) of charities receiving benefit.
- Refrain from using deceptive or ambiguous labels/logos on bins that imply donations will go to support a particular cause if there is no underlying affiliation with a charitable organisation and clearly disclose the for profit nature of your business on your bins.
- Obtain written consent from a property owner and/or representative prior to placing and/or moving donation drop boxes on any private property.

- Service drop boxes as often as necessary to avoid accumulation of donated items or debris around said bins.
- Provide the property owner and/or representative with a working phone number and commit to responding to any complaints regarding box maintenance within 24 hours of receiving notification during regular business hours.
- Comply with any applicable zoning and or permitting requirements, including state, local and municipality requirements.

In addition, SMART encourages donation drop box operators ensure the legitimacy of any potential charity partner, e.g. by asking them to provide verification and documentation by authorities/independent bodies indicating their status as charitable organisation.

7.4 Boer Group (Belgium, Germany and the Netherlands)



The Netherland based Boer Group collects used textiles, sorts them and prepares them for a second use. In addition, the Boer Group works with businesses that recycle textiles in “sustainable and diverse ways.” The group has been working with textiles for over 40 years and consists now of three collecting companies and seven sorting businesses in the Netherlands, Belgium and Germany. Together, they sort 450,000 kg of textiles per day and employ around 500 production workers.

The collection of textiles takes place via clothing containers as well as via door-to-door collection, for instance twice a year. All of this is done in cooperation with a charitable body and at least 10% of the returns from the textiles collected benefit these organisations according to information on the group’s homepage.

The Dutch and German sorting companies within the Boer Group work in accordance with the standard “Beoordelingsgrondslag Geoptimaliseerd Textielsorteerproces” (see section 5.6).

7.5 Wieland Textiles (The Netherlands)



Wieland Textiles has been buying quality used clothing and shoes on a massive scale from domestic collectors since 1982. Everything is sorted by type, size and material, and then sold on the global market. With a trained staff of more than 55 the company prepares used clothing and footwear for resale. Over 200 tonnes of clothes are sorted every week on the basis of type, size and quality into more than 300 types and grades of garment. Clothing that does not pass a general quality assessment of the staff is sent for recycling at a closely associated specialist company that meets all environmental (legal) requirements. (Wieland Textiles, 2013a).

Identified requirements

Wieland is a leading actor in developing and using the standard “Beoordelingsgrondslag Gecertificeerd Textielsorteerproces” (see section 5.6).

Employees at Wieland are specially trained to decide in which category each piece of clothing should be placed. This training usually takes about one month before a newcomer can work alone. If the customer is not satisfied with the delivered quality, the sorting process is revised accordingly. (Wieland Textiles, 2013c).

7.6 Development of sub targets for improving handling of used textiles by Ideell Second Hand (Sweden)



Ideell Second Hand [Non-profit Second-hand] is a cooperation between ca. 15 Swedish non-profit organisations that pursue reuse and non-profit second-hand activities. During 2011, the members and supporting partners of Ideell Second Hand collected 25,000 tonnes of textiles and 5,000 tonnes of hard products. In 2011 the total sales of Ideell Second Hand were about 895 million SEK. (Ideell Second Hand, 2012).

In 2011/2012 discussions started within Ideell Second Hand to develop a code of conduct for improved environmental and social performance and increased transparency and traceability of collected used textiles. It was considered important that efforts made to improve environmental and social performance regarding the handling of used textiles were understood, supported and implemented by all members. After internal discussions, the members decided to redirect their efforts and chose to start by defining objectives and sub targets. By doing this, the members of Ideell Second Hand expect to be well prepared when a general code of conduct is developed, e.g. within this project (*The Nordic textile reuse and recycling commitment*). (Enebog, 2013).

Ideell Second Hand has defined four objectives:

- Act to increase reuse of textiles.
- Inform about the social benefits (in Sweden and abroad) resulting from donations of textile (and other products).
- Act for handling of donations according to the waste hierarchy.
- Be an active part in developing better and more legitimate collection of used textiles in Sweden.

(Enebog, 2013)

The steering committee of Ideell Second Hand was given mandate to propose sub-targets that help the members to meet these objectives. The sub-targets will be finally decided and published in the beginning of 2014. The targets allow the members to act even before a general code of conduct is in place.

Although the final sub-targets cannot be listed in this report, the current proposal lists sub-targets in the following areas:

- Increased reuse and strict implementation of the waste hierarchy for collected used textiles.
- Creating opportunities to work (e.g. work training, internships).
- Use of profits.
- Publication of economic results.
- Creating (more) opportunities to buy second hand .
- Enabling (new) ways of collecting and handling used textiles, preventing disposal of these textiles.
- Engaging volunteers and the public.

(Enebog, 2013)

7.7 Human Bridge's experiences with developing guidelines for collection and handling of used textiles and shoes (Sweden)



The charitable organisation Human Bridge was founded in 2001 in order to coordinate the material aid shipments from the two Swedish relief and development organisations Erikshjälpen and Läkarmissionen. In 2013 Human Bridge was reorganised into a foundation. One of the four primary areas of Human Bridge's work is the collection, sorting, packing and shipment of clothes to people in need (Human Bridge, 2013).

Human Bridge experienced itself increasingly confronted with questions on their code of conduct regarding collection and handling of used

textiles as the organisation started working together with retailers, sorters and recyclers. Lacking such, the organisation in several cases had to sign their customers' general code of conduct. As a result, Human Bridge decided to start developing guidelines addressing specifically the collection and handling of used textiles. The objective is to increase quality, credibility and transparency of the organisation's work. Although the final text is not yet decided on and published, several core aspects of the intended code of conduct have already been implemented in the organisation's work in 2013. (Rosinski, 2013).

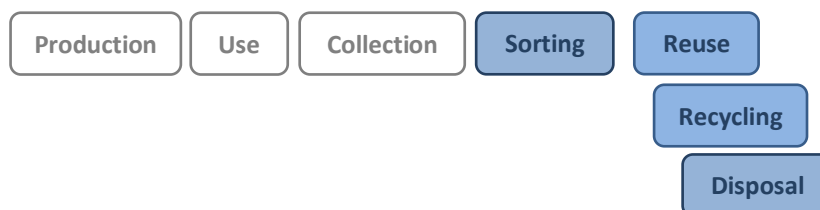
Identified requirements

The planned guidelines will be mandatory for Human Bridge and the organisation's textile trade company as well as their customers and partners. The guidelines are not yet published, but include – apart from requirements to act in accordance with national and EU's legal directives on waste – specific requirements on the collection, sorting and handling of used textiles and textile wastes. These requirements comprise:

- Only textiles (and shoes) from accepted companies and organisations with written agreements and permits for collection of used textiles will be handled.
- Collection containers must be clearly marked regarding the purpose of the collection.
- Only used textiles/textile wastes (and shoes) accompanied with information on where they were collected will be handled. Textiles (and shoes) with unclear origin and/or that were potentially illegally collected will not be accepted into the system.
- Proper documentation of the collected and handled used textiles/textile wastes (and shoes) regarding volumes, weights, export routes and receiving countries.
- Collected used textiles (and shoes) can only be sold to companies with the requested competence regarding handling of these material flows. They must be professionally sorted according to modern environmental criteria in regards to reuse and recycling.
- The EU waste hierarchy must be applied giving priority to reuse and recycling according to best available techniques (in descending order).

(Rosinski, 2013)

7.8 Policy for clothes, textiles and other donations by the Swedish Red Cross (Sweden)



The Swedish Red Cross collects used textiles (and other products) in order to sell them and use the revenues for humanitarian aid on a local, national and worldwide level. The Swedish Red Cross is the second largest textile collecting organisation in Sweden with 279 second-hand stores, handling around 5,000 tonnes of used clothes annually (Dahlin, 2013).

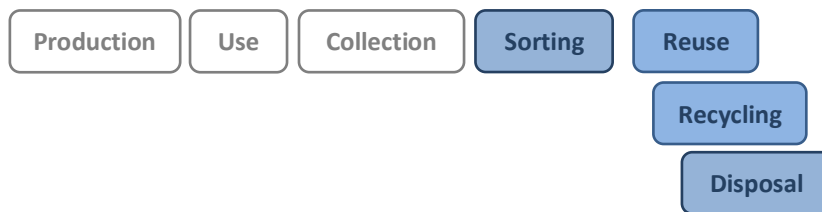
In 2012 the board of the Swedish Red Cross adopted a policy for clothes, textiles and other donations. It states that clothes are regarded as a recyclable resource and that the organisation takes responsibility that the collected clothes are reused and recycled promoting sustainable development (Svenska Röda Korset, 2012). Two of the main objectives to adjust and specify the handling of collected textiles were to increase credibility and transparency regarding the collection of used textiles as well as to minimise incineration and landfill of the collected textiles (Dahlin, 2013).

The adopted policy has internally led to new requirements for the handling of collected textiles as well as cooperation with the Dutch foundation KICI, who handle the collected textiles that cannot be sold for reuse in Sweden. Implementation started in 2013 and will become mandatory in 2014, i.e. from this date the Swedish Red Cross will send all textiles not suitable for reuse in Sweden to KICI for recycling (Dahlin, 2013). KICI acts as a textile collector and agent channelizing the used textiles to certified textile sorters and textile recyclers.

The textiles not sold for reuse by the Swedish Red Cross are transported to a certified sorter who creates packages of clothing for less wealthy parts of the world. Clothing which is not suitable for re-use is

recycled. In an industrial scale sorting machine¹⁶ a portion of the clothing and fibres is selected for the production of e.g. recycled yarn, chairs, tables and coat hangers (KICI, 2013).

7.9 Myrorna and Fretex Code of Conduct for clients purchasing used goods (Sweden and Norway)



Myrorna is the largest second hand chain in Sweden. Myrorna's mission is to contribute to a sustainable society by actively working for reuse of clothes, furniture and other items. The surplus generated by selling second hand goods is used in the social work of the Salvation Army to support the weakest in society. (Myrorna, 2013).

Myrorna collects textiles primarily for reuse in Sweden. Textiles (and other products) that cannot be sold for reuse in Sweden are sold (exported) by Fretex International, the wholly owned trading company of Myrorna and Fretex. Fretex international trades all used textiles from the Swedish and Norwegian Salvation Army that cannot be sold for reuse in these countries (ca. 12,000 tonnes annually). Myrorna has had a code of conduct for exports of used textiles since 2006. In 2013, however, the organisation recognised a need to update it and will publish the new *Myrorna and Fretex Code of Conduct for clients purchasing used goods* in the beginning of 2014. This will be followed by an initial revision of the currently around 20 clients in the first half of 2014. (Enebog, 2013).

The proposed code of conduct is an important tool for Myrorna to develop environmentally viable and sustainable business solutions. It defines what the organisation wants to achieve and how this can be

¹⁶ The first industrial scale sorting machine was developed 2009-2012 by a consortium of SMEs under the name Textiles4Textiles. Each partner in the consortium represents part of the value chain of second-hand textiles: collection, sorting, recycling and manufacturing. The first partner in the chain is KICI. (KICI, 2012).

done as well as what kind of partnerships and what business partners Myrorna strives for. (Enebog, 2013).

Identified requirements

The proposed code of conduct underlies Myrorna's fundamental principles to ensure an ethical handling of goods through the entire value chain and to minimise the remaining waste fraction. It will apply to all customers buying goods from Fretex International, i.e. Fretex International's customers *must* operate according to the proposed code of conduct. Furthermore, Myrorna and Fretex encourage their customers to pass on the same ethical standards in turn to their own clients, i.e. Fretex International's customers' clients *should* operate according to the proposed code of conduct. In case Fretex International's customer is a sales agent, Fretex International's customers' clients *must* operate according to the proposed code of conduct. (Enebog, 2013).

Fretex International's customers *must* regularly report (using the developed transparency protocol template provided by Fretex International):

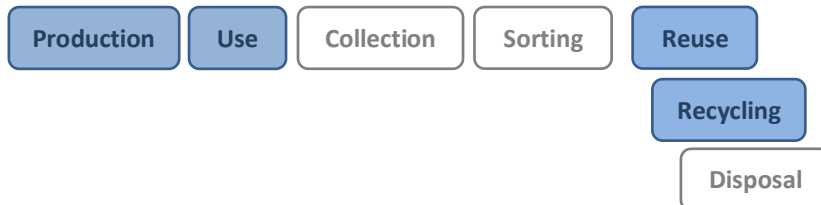
- sorting of received goods
- downstream destinations
- weights of sorted goods
- waste fractions and treatment of remains.

(Enebog, 2013)

The proposed code of conduct defines certain minimum requirements that Fretex International's customers must comply with. If a national law addresses an aspect of the proposed code of conduct in a more stringent way, the requirement in the national law should be applied, i.e. the more stringent requirement shall be applied. (Enebog, 2013).

The proposed code of conduct has not yet been published, but comprises altogether 15 aspects in the areas of working conditions, environment, transport of goods and sound business & transparency. (Enebog, 2013).

7.10 Bra Miljöval [Good environmental choice] (Sweden)



Bra Miljöval [Good environmental choice] is a voluntary, third party assured eco-label scheme for products and services aimed at the general public. The label is currently available for 34 products and services, one of which is textile products (Naturskyddsföreningen, 2013).

The scheme is administered by the Swedish Society for Nature Conservation [Naturskyddsföreningen], a non-profit member organisation. The criteria for textiles were updated 2012. The Bra Miljöval label is the only eco-label known that can be awarded directly to second-hand and redesigned post-consumer products.

The Bra Miljöval is primarily recognised by Swedish consumers and is therefore largely only used by producers of products and service contractors selling within Sweden. Currently 11 companies have received certification for all in all 23 textile products (Naturskyddsföreningen, 2013).

Two classes are identified for products: Class I which meet the strictest demands and Class II which meet most demands but are allowed to avoid some demands. Criteria which are not required for Class II products are highlighted in the standard. Products which carry the Bra Miljöval label must identify the share of Class II marked criteria which the product does not meet.

Identified requirements

The criteria which textile products need to fulfil in order to receive a Bra Miljöval label are included in the protocol *Bra Miljöval Textil 2012:1* (Naturskyddsföreningen, 2012). The criteria are grouped according to 11 different groups. Within each group criteria can be included for one or more of the three product types:

- Fibre production and production of new products.
- Second-hand textile products.
- Redesigned post-consumer textiles (i.e. upcycled products).

Not all the criteria are relevant for the purposes of this report. We therefore only include those which are of relevance to reuse and recycling of textiles, i.e. all criteria for the second-hand and upcycled products and some of the criteria for new products. The latter include criteria which either concern chemical use which potentially effects end of life suitability for recycling, or requirements for inclusion of recycled materials in the new product.

Key criteria of interest for new products include:

- At least 95% of synthetic fibres with the exception of elastics (which can comprise max 10% of the total product) must be produced entirely from recycled materials. Class II products can avoid this requirement.
- Natural fibres included in products should come from organic certified production though the specific requirements differs for different fibre types.
- Recycled natural fibres used must be post-consumer or pre-consumer production waste (i.e. offcuts, roll ends etc.). If chemical processes are required to recover recycled fibres these must fit a set of criteria given under Part 5 of the protocol.
- Products may not include PVC for zips, buttons etc.
- Parts 5 and 7 of the protocol include a large set of exclusions and limits to use of particular listed chemicals during production, dyeing and finishing of products, which are considered hazardous to humans or the environment. Methods for testing whether these requirements have been met are given in appendices to the protocol.

Criteria for second-hand products so that they can be given the Bra Miljöval label are as follows:

- Second hand products awarded the label must have been used by a private consumer or by a business (i.e. uniform, hospital linen etc.).
- The second-hand product may not include PVC.

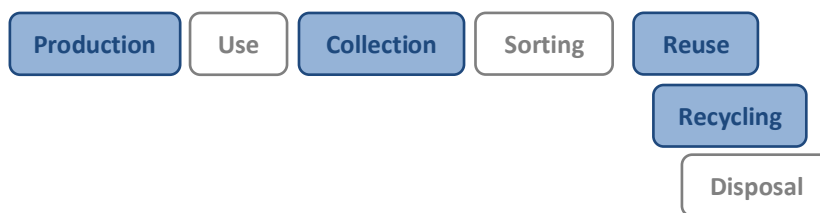
- The contents of the products are otherwise not subject to any criteria. In other words the original product when new does not need to have been suitable for a Bra Miljöval label.

Criteria for redesigned post-consumer (upcycled) products are as follows:

- The redesigned product must have been produced from fabrics extracted from post- consumer textile products or pre-consumer production waste such as unsold articles, offcuts, and roll ends etc.
- The second-hand product may not include PVC.
- The product must be mostly produced from textiles. Buttons, zips etc. which have been added during the redesign must meet criteria given for these items for new products given in Part 4 of the protocol.
- If chemicals have been used during the upcycling process i.e. for prints, re-dyeing etc. these must meet the requirements given for these processes as given for new products under Parts 4 to 7 of the protocol.

There are no criteria for new products concerning design for reuse or recycling. Nevertheless, the Bra Miljöval label goes much further than any other eco-label with respect to reuse and recycling.

7.11 Textiles for Recycling Initiative (T4RI) (Sweden)



The Textiles for Recycling Initiative (T4RI) is a voluntary initiative from some of the largest members of the Swedish Trade Federation operating in the textile sector. The objective is to create better conditions for reuse and recycling of textiles. T4RI wants to promote a sustainable society where environmental and social benefits are always in focus.

The initiative can be seen as a forum for a more simple and smooth cooperation between different actors within the sector, including consumers, producers and local authorities. The group consists of representatives from H&M, Kappahl, Lindex, Ikea, Indiska and Åhléns, togeth-

er with the Swedish Trade Federation who serves as a secretariat for the group. The group is open for more members sharing the group's view of reuse and recycling of textiles.

Identified requirements

T4RI has not developed any formal guidelines or Code of Conduct for the collection of used textiles or the disposition of the revenues (Svensk Handel, 2013b). However, these aspects have been discussed among the members of the group that have developed the following list of objectives:

- To promote that the collection of textiles is done in a cost-effective way with utmost respect for the environment.
- To encourage and promote that the collection takes place as close to the consumers as possible.
- To ensure that everything that can be reused is taken care of by serious actors.
- To be an active participant in the dialogue on reuse, recycling and producers' responsibility of textiles.
- To promote textile recycling on a large scale.
- To increase the use of recycled fibres with the aim to close the material cycle.

(Svensk Handel, 2013a)

7.12 H&M and the I Collect scheme (international)



In February 2012, H&M became one of the first multi-national corporations to offer collection containers in their stores. The company decided to work with the already well-established I:CO scheme (short for *I Collect*), where H&M is responsible only for the collection of textiles (while I:CO takes care of the rest). H&M does not restrict the collection to its own

brands, but allows the customer to hand in all clothing. At the moment the collection scheme only includes clothes, not other textiles, shoes, etc.

Each customer can hand in a maximum of two shopping bags of clothes per day with different award depending on countries (UK – GBP 5 Voucher, US – 15% off one item). The generated revenue is used to reward customers, to make donations to local charity organisations and to invest in recycling innovation. For each kilo of clothes collected, H&M donates 0.02 Euros to a chosen charity (depending on countries) (H&M, 2013b).

I:CO was chosen as a partner since the company offered the possibility to collect and sort for both reuse and recycling on a global scale, thus covering most of H&M's market areas. This choice was also based on existing positive experience from Switzerland, where 18 H&M stores had cooperated with I:CO since autumn 2011.

The driving force behind the cooperation between H&M and I:CO was to reduce the environmental impact of the former and the willingness to offer a simple and easily accessible system to collect old clothes regardless of brand or condition for reuse and recycling, all in order to reduce the amount of clothes ending up as waste, to save natural resources and to close the textile loop.

The collection system is available at all H&M and Weekday stores in all countries, except from Indonesia and Serbia where it will be launched in spring 2014. The collection is normally launched six months after entering a new market. In the Middle-East, however, the collection is only available in one store per country. (H&M, 2013e) The collection system has been well-functioning in general. The biggest challenge has been to establish a functional logistic system in some of the markets.

Identified requirements

H&M introduced its own Code of Conduct for suppliers in 1997 in order to make the supply chain more sustainable. The cooperation with I:CO as well as all procedures in relation to this is in accordance with this Code of Conduct. The company has defined seven main commitments, complemented with several detailed "conscious actions." The progress in performing these actions is accounted for in the annual report. The sustainability reporting is based on GRI G3.1 Sustainability Reporting Guidelines (self-declared). Auditors review is a part of the sustainability report. (H&M, 2013c).

The I:CO sorting facilities have been audited against the H&M Code of Conduct (H&M, 2013a). H&M also evaluated I:CO's procedures prior to

entering into agreement with them. Transparency is an important part of the agreement and I:CO submits detailed reports to an online database, only accessible by H&M. This data includes (H&M, 2013e):

- quantities of collected textiles per country
- percentage for reuse, recycling, etc.

(H&M, 2013e)

In addition to this H&M reviews I:CO's annual report to perform due diligence. (H&M, 2013e).

H&M's cooperates with charity organisation in various contexts. A basic requirement is that the organisation in question is neutral from religious and political point of view. Individual countries can choose which organisations receive the 0.02 Euros per kg of clothes collected, as long as H&M's criteria are fulfilled. A list of the organisations together with frequently updated data on the amounts of clothes and money per organisation, is published on a special webpage. (H&M, 2013d).

The revenues are donated through Conscious Foundation, which in that case selects the charity organisation in accordance with the criteria. (H&M, 2013e).

I Collect AG (I:CO)

I:Collect AG (I:CO) is a Swiss-based company, with almost 3,000 employees world-wide. The corporation has collection points all over Europe and in the USA and is currently processing around 500 tonnes of used items every day in 74 countries. Several large retailers are co-operating with I:CO in order to prevent their textiles from becoming waste. In addition to H&M the list of partners includes amongst others Adidas, Puma, Jack&Jones, North Face, Esprit, C & A, Adler and Reno. Some of the collection points restrict the collection to their own brands, while others accept any type of clothing, leather clothing, furs, underwear, socks, belts and bags, as well as bed, table and household linen and cushions. The aim of I:CO is to integrate all collected textiles and shoes into a recycling process by 2020, while completely eliminating waste products. (I:CO, 2013a) I:CO works according to a published mission statement which adheres to the waste hierarchy, (I:CO, 2013b) but a formal code of conduct is not applied.

As a part of I:CO's philosophy the company has decided that a recycling plant is built in every country in which I:CO collects textiles and shoes when collected goods exceed a volume of 500 tonnes per day. In this way I:CO contributes to the national or economy and job creation.

7.13 Swapstories by Haglöfs (Sweden)



Haglöfs has produced outdoor clothing and equipment since 1914 and is now the largest supplier of outdoor equipment in the Nordic region, also exporting to other parts of Europe and to Japan.

Outdoor clothing can last for many years, which means that the owners are often getting bored of the garment long before it is worn out. With this in mind, Haglöfs decided to develop a functioning reuse concept within the outdoor clothing sector to enhance reuse and prevent the products from being wasted. The Swapstories initiative was launched in Haglöfs' Brand Store in Stockholm in September 2012 as an attempt in this direction. (Haglöfs, 2012) So far the pilot project has only been implemented in this particular store, but the company is exploring the possibility to expand it to other Haglöfs stores and later on also to their partners' stores.

The Swapstories initiative includes the collection and reselling (and thus the reuse) of Haglöfs' products. The aim is to extend the lifetime of Haglöfs' clothing by offering the consumer to hand in those in return for a reward of 20% discount on an item from the store. The approach is made personal by asking the owner to not only hand in the garment but to furthermore include the life story of the clothing in question. The buy therefore becomes more fun and personal for the new owner as well as being a cheaper and more environmental friendly option than a first-hand garment. If the story is missing, the discount is lowered to 10%. (Haglöfs, 2013).

Haglöfs does not gain any money from the sale, as reflected in the description above. During the first four months (Sept–Dec 2012) a sum of ca. SEK 50,000 was donated as a result of the initiative. (Haglöfs, 2013).

The first year experience of Swapstories has mainly been good. However, there have often been some imbalances between supply and demand as it has proven to be difficult to get the used garments coming in continuously. As mentioned below, a better control is also needed to ensure that the donated money is paid to the charities. In addition to

this, it has been difficult to spread the word among consumers to make them aware of this service.

In short, there is a potential for improvements regarding communication and control of payments to the charities.

Identified requirements

All used garments handed in have to be original Haglöfs products, clean and without any major faults. Haglöfs has chosen two particular charities to donate the income to, i.e. *Vi Agroforestry*, which is a Swedish development cooperation organisation that works with support to farmers in the Lake Victoria Basin in Eastern Africa, and *Projekt Åredalen*, assisting Roma people in Romania. The new owner of the used garment is allowed to pick one of these two charities to whom the price of the used garment will be donated.

Payments for used garments are not collected by Haglöfs as this would lead to certain administrative complications regarding VAT etc. Instead the new owner is responsible for transferring the money to the recipient. Haglöfs keeps contacts to the two organisations to ensure that the donated money reach its destiny. This process, however, could be improved. No specific measures have either been taken to guarantee the transparency of the system. (Haglöfs, 2013).

8. Synthesis of requirements in the identified examples

Due to the current high demand of used textiles, there is an increasing number of actors collecting and handling these textiles. The identified examples highlight the need to define ways of ensuring a high quality collection and handling of used textiles accompanied by increased transparency and traceability regarding the textile flows and use of profits and revenues.

This section summaries some of the main aspects of the identified examples regarding collection, sorting, reuse, recycling and disposal of used textiles. This collection of relevant aspects serves as a starting point for the subsequent work in the project; especially regarding Task 7 (Development of commitment and code of conduct), Task 8 (Communication, Implementation and operation) and Task 9 (Appropriate body/voluntary agreement).

8.1 General legal requirements (including priority for reuse)

In general, the identified examples cases imply or specifically state compliance of national and international laws as a prerequisite for the collection and handling of used textiles. On a broader level, this includes compliance of social laws, labour laws, environmental laws, financial laws, competition laws etc.

Several actors¹⁷ stress the importance of proper implementation of the European five step waste hierarchy in the Directive 2008/98/EC¹⁸ on waste as a central requirement. The five step waste hierarchy gives

¹⁷ Including e.g. bvse, Ideell Second Hand, Human Bridge and TÜV Rheinland.

¹⁸ Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives.

clear priority for reuse (prevention) before preparing for reuse, recycling, energy recovery and disposal in descending order.

8.2 Requirements on traceability, transparency and documentation of material flows (including exports)

Several of the identified examples include specific requirements to secure high levels of traceability and transparency of the material flows of used textiles. A prerequisite for this is a good documentation of processes, volumes/amounts of textiles, qualities, partners etc. – in-house as well as upstream and downstream in the value chain.

The main aspects are summarised as follows:

- Identification and description of the different steps in the process and clear process documentation.¹⁹
- Proper documentation of quantities (volumes and weights) of used textiles and textile wastes handled nationally including:²⁰
 - a) Collection.
 - b) Sorting.
 - c) Reuse.
 - d) Recycling.
 - e) Incineration.
 - f) Landfill.
- Proper documentation of the quantities (volumes and weights) of imported and exported used textiles and textile wastes including:²¹
 - a) Country of origin.
 - b) Export routes.
 - c) Receiving countries.
 - d) End fate in receiving country.

¹⁹ GRS.

²⁰ French EPR, Human Bridge, H&M, Myrorna, TÜV Rheinland.

²¹ bvse, French EPR, Human Bridge, Myrorna, TÜV Rheinland.

- Inspection of quantity and quality of used textiles and textile wastes upon arrival.²²
- All records regarding the standard must be retained for a minimum number of years.

8.3 Requirements regarding use of profits and traceability of revenues

A large share of the collection of used textiles in the Nordic countries is carried out by charitable organisations. Typically consumers donate their textiles via textile containers or over the counter in second hand shops. One of the central incentives for consumers to do this is that they want to donate their used textiles for charity (“for a good cause”). Private and/or illegitimate actors sometimes imply that the revenues from the collected textiles are used for charity, but without providing reliable documentation what the revenues actually are used for.

The main aspects regarding requirements for the documentation and use of profits identified in the examples are summarised as follows:

- Written statement of the purpose of the collection of used textiles.
- Communication of the (minimum) amount of money / ton collected used textiles that goes to charity (the amount may be equal to zero).²³
- Revenues must be used for the stated aim.²⁴
- Fundraising operations (for charitable causes) must not be burdened by unreasonable costs.²⁵
- Professional accounting (by suitable individuals who are knowledgeable as regards economic matters).²⁶
- Publication of economic results and use of profits.²⁷

²² GRS.

²³ TRA CoP.

²⁴ Swedish Fundraising Control.

²⁵ Swedish Fundraising Control.

²⁶ Swedish Fundraising Control.

²⁷ Ideell Second Hand.

8.4 Requirements regarding collection of used textiles

A broad range of requirements regarding the collection of used textiles were identified in the examples. They reflect different aspects of the collection and were bundled into four subgroups.

Requirements regarding the used textiles to collect:

- Obligation to collect all used textiles, including textiles that are not (directly) suitable for reuse (e.g. torn and dirty clothing).²⁸ However, for hygienic reasons it might be necessary to predefine some exceptions (e.g. for duvets, mattresses and pillows due to mites and pests as well as for some types of working clothes with paint-/oil stains and flame retardants as they might contaminate other textiles). (Dahlin, 2013).
- Not-acceptance of textiles that originate from illegal collection or textiles with uncertain origin.²⁹
- Minimum 50% collection of used textiles.³⁰

Requirements regarding permits for collection:

- The collector must have (written) permits for all textile collection containers from competent authorities.³¹

Requirements regarding the procedure of collection:

- Defining a formalised collection procedure including e.g.:³²
 - a) a timetable for collection (and collection at times agreed)
 - b) a feedback procedure for complaints and suggestions
 - c) monitoring to secure adequate collection patterns.
- Mandatory scales in order to weigh the collected goods.³³

²⁸ French EPR, Human Bridge, Swedish Red Cross, TRA (specification for textiles derived from charity shops).

²⁹ bvse, Human Bridge.

³⁰ French EPR.

³¹ bvse, French EPR, Human Bridge, SMART, TRA CoP.

³² TRA CoP.

³³ Human Bridge, TRA CoP.

- Ensure that textile containers are waterproof and constructed in a way that minimises theft.³⁴
- Ensure collection bins and collection vehicles are thoroughly cleaned, dried and free from any contamination.³⁵
- Keep sites well maintained and attractive so that people are encouraged to visit them.³⁶
- Provide property owner with a service number (in case of complaints) and a guarantee of providing service within a certain time.³⁷
- The collecting organisation must be able to visually identify itself during collection.

Requirements regarding labelling of textile containers:

- Clear and correct labelling of the textile containers including e.g.:³⁸
 - a) name and contact of the collector
 - b) purpose of the textile collection
 - c) beneficent of the collection
 - d) contact details in the event of problems
 - e) types of materials accepted
 - f) not using deceptive and ambiguous labels and logos (e.g. to falsely imply donations to charity).

8.5 Requirements regarding sorting of used textiles

The main aspects regarding requirements for sorting of used textiles identified in the examples are summarised as follows:

- Definition of a formalised procedure to determine wheatear products should be assigned to reuse, recycling, recovery or disposal.
- Proper training of personnel involved in sorting.³⁹

³⁴ PAS 105.

³⁵ PAS 105.

³⁶ PAS 105, SMART, TRA CoP.

³⁷ SMART.

³⁸ bvse, Human Bridge, PAS 105, SMART, TRA CoP.

³⁹ Wieland Textiles, TÜV Rheinland.

- Obligation to sort all used textiles (including used textiles not suitable for reuse).⁴⁰
- Professional sorting according to modern environmental criteria in regards to reuse and recycling.⁴¹
- Ensure traceability of sorted used textiles (upstream and downstream).⁴²
- Only handling of used textiles accompanied with information where they were collected.⁴³
- Sale of collected textiles only to companies with professional expertise (i.e. accepted companies).⁴⁴

8.6 Requirements regarding recycling of used textiles

The main aspects regarding requirements for the recycling of used textiles identified in the examples are summarised as follows:

- 70%/90% reuse and recycling of collected amounts.⁴⁵
- Recycling of textiles not suitable for reuse according to best available technique.⁴⁶

8.7 Requirements regarding disposal of used textiles not suitable for reuse and recycling

Only one specific requirement was found regarding the disposal of used textiles (after sorting) that are not suitable for reuse or recycling:

- All waste must be processed in the region (waste incinerator with energy recovery in case of disposal).⁴⁷

⁴⁰ French EPR, Human Bridge, Swedish Red Cross.

⁴¹ Human Bridge.

⁴² French EPR.

⁴³ bvse, Human Bridge.

⁴⁴ bvse, Human Bridge.

⁴⁵ bvse, French EPR.

⁴⁶ Bvse.

⁴⁷ TÜV Rheinland.

9. Lessons learned and conclusions

There might be several barriers to developments of standards for the textile reuse and recycling industry. Due to the diverse nature of the sector, a single standard may be too broad or restrictive to be effective for all actors involved, whereas multiple standards may not achieve universal recognition or may confuse the market, rather than clarifying it (Oakdene Hollins, 2009). The broad scope of the industry also means that a standard may be welcomed by one part of the industry, while resisted by another, making overall adoption and drafting difficult (Oakdene Hollins, 2009).

However, the experiences made in this project while analysing examples regarding quality requirements for the collection and handling of used textiles are very encouraging. The literature review and the interviews have shown a large need for and a large interest in developing quality and transparency criteria for the collection, reuse, sorting, recycling and disposal of used textiles. This is also reflected by the large number of voluntary initiatives.

Two of the objectives of this project (*The Nordic textile reuse and recycling commitment*) are to develop a code of conduct for actors within the textile value chain and a plan of implementation for wide use of this code of conduct. Assessing aspects and requirements as well as considering experiences made in existing regulations, standards, certification schemes and voluntary commitments is considered to increase the level of acceptance for the developed code of conduct and, as a result, increase its expected impact.

In addition to the synthesis of the identified requirements in the examples in section 8, this section lists aspects that were addressed by stakeholders within this task that might be considered in the subsequent project work.

9.1 Looking at the entire value chain

In order to reach impact and properly address the environmental and social challenges regarding used textiles, the proposed code of conduct should secure a sustainable and responsible handling of used textiles throughout the value chain (i.e. collection, sorting, reuse, recycling and disposal).

Several actors have stressed the importance of going “beyond collection” in order to effectively impact customers and markets. This includes markets and stakeholders outside of the Nordic countries. The proposed code of conduct should therefore not be limited to collection and subsequent handling of used textiles in the Nordic countries, but also include the handling of exported textiles. It is crucial that the defined requirements are met all the way through the pathway of collected textiles.

Ideell Second Hand has identified aspects that need to be addressed in a code of conduct (Enebog, 2013):

- Requirements to handle used textiles according to the five step waste hierarchy (i.e. giving clear priority for reuse (prevention) and preparing for reuse, promoting recycling and minimising incineration and landfill of used textiles).
- Requirements on transparency.
- Requirements on documentation and statistics.
- Requirements on traceability of handled used textiles.
- Requirements on documentation of ethical and environmental risks from collected materials throughout the entire value chain as well as ways of minimising such risks.
- Requirements on independent revisions.

9.2 Common ground and acceptance as prerequisite for proper implementation

One of the big challenges with implementation of a code of conduct along the entire value chain is to go beyond signing an agreement to adjust (and sometimes change) companies’ and organisations’ business models. This is usually made customer for customer, partner for partner until the entire value chain reflects the requirements in the code of conduct. Sometimes a certain limited “grace period” for full implementation might be considered (i.e. exemptions from the code of conduct if there is

a concrete plan to adjust processes). It might sometimes be hard to audit all actors all the way, and there is a large need to carry out follow-up work and to keep an open dialogue with customers.

Experiences from Ideell Second Hand (see section 7.6) has shown that the process of developing objectives and concrete targets – as well as the sub-targets themselves – is very important in order to gain a better understanding and acceptance among members and other stakeholders. (Enebog, 2013).

Myrorna made similar experiences in the process of developing a code of conduct (see section 7.9). Within this process, the organisation was forced to define relevant aspects and demands, and the implementation of the code of conduct will include that Myrorna and Fretex (over Fretex International) oversee their business solutions. This experience shows that a good understanding of challenges and opportunities as well as good anchoring within the organisation(s) are key success factors and that a code of conduct must develop out of this understanding and commitment in order to be effective. (Enebog, 2013).

9.3 The wide range of actors calls for a practical approach

The wide range of actors considered for the code of conduct (yet to be proposed) calls for a practical approach. As an example: a small second hand shop has very different possibilities and pre-conditions of acting than organisations collecting large amount of used textiles. It is important to develop a practical code of practice that is possible to live (for all actors) in order to get all actors “on board”.

One practical approach could be to find ways for small actors to implement the code of conduct by connecting them to larger actors. In this way, as an example, a small second-hand shop can give its unsold textiles to a larger collector with contacts to approved sorters and recyclers instead of sending them to incineration. The larger organisation would in this case serve as a hub, channelizing the flows of used textiles to treatment higher up in the waste hierarchy. This is to some extent already practiced today in bilateral agreements (Rosinski, 2013).

The identified examples included among other things two different approaches with differentiated requirements:

- The TRA Code of Practice for collectors of used textiles (see section 7.2) with different levels of requirements (must, ought and should).
- The Bra Miljöval labelling with different classes of demands (Class I and Class II).

Another aspect to consider in the code of conduct is the possibility of having two levels – one regarding the collection and handling of textiles and one additionally comprising social work (charity work). This would on one hand make the code of conduct broad enough to be applicable to all actors, and on the other still make it possible for consumers to differentiate between charitable organisations and non-charitable organisations.

There is also a need to consider how the planned code of conduct can work for organisations that are organised as different legal bodies. This is for example relevant for an organisation as the Swedish Red Cross, where only two out of 279 second-hand shops are organised directly under the Swedish Red Cross and the remaining 277 second-hand shops as individual legal units.

9.4 Control and sanctions are central for successful implementation

The implementation of the planned code of conduct must be properly controlled in order to be effective. The current situation reveals a lack of enforcement (e.g. if textile containers are set up illegally or marked with ambiguous labels and logos). Sanctions for malpractice or even illegal activities are rarely enforced.

While considering the requirements in the planned code of conduct, ways of securing implementation and enforcement must also be considered. Third party assurance can play an important role in this. However, there is additional need for enforcement to be carried out by competent authorities or a network of stakeholders that is given a clear mandate to control and act.

10. References

- Boer Group. (2013). *Home*. Hämtat från A world of textile recycling: <http://www.boergroepholland.nl/uk/index.html>
- British Standards Institution. (2012). *Principles of PAS*. BSI Standards Limited.
- British Standards Institution. (2008). *PAS 105 Recovered paper sourcing and quality: Code of practice*.
- BSI Standards Publication. (2012). *Principles of PAS standardization*. Hämtat från The British Standards Institution: <http://www.bsigroup.com/LocalFiles/en-GB/standards/bs0-pas0/BSI-PAS0-Principles-of-PAS-UK-EN.pdf>
- bvse. (2013a). *bvse-Qualitätssiegel-Zertifizierung*. Hämtat från <http://bvse.de/449/Das%20Textilsiegel>
- bvse. (2013b). *Die Siegelträger*. Hämtat från <http://bvse.de/450/Mitglieder/?suche=mitglieder&art=standard&textil=1#>
- bvse. (2013c). *Neue Website: Träger des Qualitätssiegels für das Textilrecycling jetzt online finden*. Hämtat från <http://www.bvse.de/454/News>
- bvse. (2013d). *Textilrecycling mit Kompetenz*. Hämtat från <http://www.bvse.de/15/Textil>
- Control Union. (2013). *Global Recycling Standard GRS*. Hämtat från http://certification.controlunion.com/subprogram.aspx?Subprogram_ID=137&Program_ID=62
- Dahlin, E. (2013). Swedish Red Cross' textile policy and experiences to increase quality, transparency and traceability of used textiles. (IVL, Intervjuare)
- Enebog, E. (2013). Experiences by Ideell Second Hand and Myrorna to improve environmental and social performance of used textiles. (IVL, Intervjuare)
- Global Recycle Standard. (March 2012). *Global Recycle Standard, Version 2.1*. Hämtat från Control Union: http://cogent.controlunion.com/cusi_production_files/SISI_files/FL_041312015032_Global_Recycle_Standard_V2_1.pdf
- H&M. (2013a). *Code of Conduct*. Hämtat från <http://about.hm.com/en/About/Sustainability/Commitments/Responsible-Partners/Code-of-Conduct.html>
- H&M. (2013b). *Garment Collecting*. Hämtat från H&M: <http://about.hm.com/en/About/Sustainability/Commitments/Reduce-Reuse-Recycle/Garment-Collecting.html> den 1 November 2013
- H&M. (2013c). *H&M Conscious Actions Sustainability Report 2012*. Hämtat från http://about.hm.com/content/dam/hm/about/documents/en/CSR/reports/Conscious%20Actions%20Sustainability%20Report%202012_en.pdf (page 16-89)
- H&M. (2013d). *H&M Countries Activities*. Hämtat från Charity Star: <http://www.hm.charitystar.com/en/home/>
- H&M. (2013e). *Personal communication with Cecilia Strömblad Brännsten* on 7.11.2013.
- Haglöfs. (2012). *Hållbarhet: Haglöfs hållbarhet 2012*. Hämtat från Haglöfs: www.haglofs.se/sv-SE/hallbarhet1 den 1 November 2013
- Haglöfs. (2013). *Personal communication with Lennart Ekberg* on 7.11.2013.
- Human Bridge. (2013). *Description*. Hämtat från <http://www.humanbridge.se/en/home/description/>

- I:CO. (2013a). *About I:CO*. Hämtat från I:CO: <http://www.ico-spirit.com/en/about-ico/>
- I:CO. (2013b). *I:CO mission*. Hämtat från I:CO: <http://www.ico-spirit.com/en/ico-mission/>
- Ideell Second Hand. (2012). *REMISSVAR: Mot det hållbara samhället – resurseffektiv avfallshantering*. Betänkandet SOU2012:56. Hämtat från <http://www.regeringen.se/content/1/c6/20/65/68/bae3338a.pdf>
- ISO. (2013). *Standards*. Hämtat från International Organization for Standardization: <http://www.iso.org/iso/home/standards.htm>
- KICI. (2012). *Higher value recycling*. Hämtat från <http://kici.nl/en/news/higher-value-recycling-for-lower-quality>
- KICI. (2013). *KICI and Swedish Red Cross announce sustainable partnership*. Hämtat från <http://kici.nl/en/news/kici-and-swedish-red-cross-announce-sustainable-partnership>
- Ministère de l'Écologie, de l'Énergie, du Développement. (2008). *Journal Officiel de la République Française*. Hämtat från Avis relatif aux personnes mettant sur le marché à titre professionnel des produits textiles: http://www.ecotlc.fr/ressources/Textes_legaux/joe_20080821_0194_0079_07607.pdf
- Ministère de l'Écologie, de l'Énergie, du Développement. (den 27 June 2008). *Journal Officiel de la République Française*. Hämtat från Décret n 2008-602 de 25 juin 2008 relatif au recyclage et au traitement des déchets issues des produits textiles d'habillement, des chaussures ou du linge de maison neufs destinés aux ménages: http://www.ecotlc.fr/ressources/Textes_legaux/DECRET2008_602.pdf
- Ministère de l'Écologie, de l'Énergie, du Développement Durable et de l'Aménagement du Territoire. (den 17 March 2009). *Journal Officiel de la République Française*. Hämtat från Arrêté du 17 mars 2009 portant agrément d'un organisme ayant pour objet de percevoir les contributions au recyclage et au traitement des déchets issus des produits textiles d'habillement, des chaussures et du linge de maison neufs destinés aux [...]: http://www.ecotlc.fr/ressources/Textes_legaux/Publication_Journal_Officiel_du_25_Juin_2009.pdf
- Myrorna. (2013). *Vilka är Myrorna?* Hämtat från <http://myrorna.se/>
- Naturskyddsföreningen. (2012). *Bra Miljöval: Textil Kriterier 2012:1*. Hämtat från <http://www.naturskyddsforeningen.se/sites/default/files/dokument-media/bra-miljoval/bmv-textil-kriterier.pdf>
- Naturskyddsföreningen. (2013). *Hitta produkter och tjänster*. Hämtat från <http://www.naturskyddsforeningen.se/bra-miljoval/register>
- Oakdene Hollins. (2009). *Maximising Reuse and Recycling of UK Clothing and Textiles*. London: Department for Environment, Food and Rural Affairs.
- Recycling and Waste World. (2013). *Handbook on specifications for the collection and processing of recycled materials*.
- Redress. (2013a). Personal communication with Sophia Tarneberg on 17.10.2013.
- Redress Limited. (2013b). *The R Cert*. Hämtat från Track your recycled clothing's journey from factory to retail: http://www.rcert.org/?page_id=52
- Rosinski, K. (2013). Experiences with developing a code of conduct for the Human Bridge.
- SMART. (2013a). *Donate, recycle, don't throw away*. Hämtat från http://www.smartasn.org/about/SMART_PressKitOnline.pdf
- SMART. (2013b). *Donation Drop Box Operator Code of Conduct*. Hämtat från http://www.smartasn.org/events/Donation_Bin_Operator_Code_of_Conduct.pdf

- Svensk Insamlingskontroll. (2013). *Applying for a 90-account and our standards, checklists*. Hämtat från <http://www.insamlingskontroll.se>
- Svensk Handel. (2013a). *Textil återvinning*. Hämtat från Om Svensk Handel: <http://www.svenskhandel.se/Om-Svensk-Handel/Samverkan-och-dotterbolag/Branschsamverkan/Stil/Textilatervinning/>
- Svensk Handel. (2013b). Personal communication with Maria Sandow on 7.11.2013.
- Svenska Röda Korset. (2012). *Svenska Röda Korsets policy för kläder, textilier och andra gåvor*. Svenska Röda Korset.
- Textile Recycling Association. (2013a). *Code of Practice for collectors, graders and exporters of used clothing*. Hämtat från <http://www.textile-recycling.org.uk/downloads/Textile-Recycling-Association-Code-of-Practice-Final-Version.doc>
- Textile Recycling Association. (2013b). *Welcome to the Textile Recycling Association*. Hämtat från <http://www.textile-recycling.org.uk/>
- Textiles 4 textiles. (2011). *What is T4T?* Hämtat från Textiles 4 textiles: <http://www.textiles4textiles.eu/?p=what-is-t4t>
- The Recycler. (2013a). *Re-use standard consultation launched in UK*. Hämtat från <http://www.therecycler.com/posts/re-use-standard-consultation-launched-in-uk/>
- The Recycler. (2013b). *UK re-use standard launched*. Hämtat från <http://www.therecycler.com/posts/uk-re-use-standard-launched/>
- TÜV-Rheinland. (2013). Personal communication with Henk Weustink on 12 Nov 2013.
- Wieland Textiles. (2013a). *Home*. Hämtat från Wieland Textiles: <http://www.wieland.nl/wieland/index.php>
- Wieland Textiles. (2013b). Personal communication with Hans Bon on 4.11.2013.
- Wieland Textiles. (2013c). Personal communication with Tom Wisser on 7.11.2013.
- WRAP. (2011). *PAS 141:2011 Certification Scheme: Frequently Asked Questions*. Hämtat från <http://www.wrap.org.uk/sites/files/wrap/PAS%20141%20Frequently%20Asked%20Questions%20August%202013%20With%20logo.pdf>
- WRAP. (2013). *Proposed standard for the collection, processing and dispatch of products for reuse*.
- WRAP. (2013). *Re-use Standard 2013: Standard for the Collection, Processing and Dispatch of Products or Components for Re-use*.

Comparison with waste management of other waste streams

By Kari-Anne Lyng, David Palm

1. Introduction

This short report describes the similarities and differences between textile and other waste collection and management systems with the purpose of exchanging experiences from other systems in order to develop efficient systems for collection and management of discarded textiles.

This document is one of four sub-reports that summarize the work from the first year of the Nordic Council of Ministers project *The Nordic textile reuse and recycling commitment*.

The project is one of six that constitute *Resource Efficient Recycling of Plastic and Textile Waste*, which was launched by the Nordic Waste Group (NWG) as part of the Nordic Prime Ministers' green growth initiative, *The Nordic Region – leading in green growth*. Read more in the web magazine *Green Growth the Nordic Way* at www.nordicway.org, or at www.norden.org/greengrowth

2. Success criteria for a waste management system

The objective of a waste management system is to minimise the amount of incorrect sorting, maximise the amount of collected waste (without interfering with waste reduction measures) and send the different waste streams to optimal treatment options.

2.1 Cost and motivation

The cost and effort of the collection and recycling should be distributed amongst the value chain in such a way that it motivates and creates incentives to meet the objective. Information along the value chain, both with regard to how (practical guidelines) and why (economic and environmental benefit) to do the work is important in order to achieve results.

For textile waste, as well as for other waste, the ideal waste system should motivate the consumer to:

- Prevent waste.
- Separate textiles for reuse and recycling rather than throwing them in the residual waste.

According to WRAP (2009), the choice of collection system should be based on the following criteria:

- quality of material
- cost efficiency
- cost effectiveness
- public acceptability.

Further, WRAP (2009) underlines that engaging the public in their local recycling scheme has been shown to be essential to the success of a recycling scheme. This includes communication of how and why, as well as suitable equipment (containers/bins) for the chosen collection system.

2.2 Market conditions

One of the major success criteria for a recycling system is to achieve a demand and a market for the recycled products. Thus, before or in parallel with the construction of a collection system for textiles, it is important to also focus on the end-consumers and how to create a market place for reused and recycled textiles.

WRAP (2009) claims that a healthy international market for recyclables is helpful to resource efficiency and increases the chances of closed loop recycling.

A large amount of textiles that go out of use is suitable for reuse without any processing or treatment, especially compared to other municipal waste streams from households. Textiles are (together with waste electrical and electronic equipment (WEEE)) one of the waste types that has an economic value on the market and hence is exposed to a risk of theft (Hjellnes consult, 2008). Other waste types, such as plastic packaging, glass and metal containers, as well as paper and cardboards, are more suitable for recycling than reuse.

A lot of textiles end up as waste long before their “end of life” time due to changed fashion styles etc. Thus, these waste amounts could still have been used (as they are not destroyed), if not being thrown away. This may be similar to a large amount of food which is discarded by consumers even though it could have been eaten if not thrown away in the waste bin. What differentiates food waste from used textiles is its expiry date and inability to be reused when mixed with inedible food waste.

In most Nordic countries the collection of used textiles are bring systems based on charity, where a small amount of the textiles are sold in Nordic second hand shops. Most of the collected textile waste is exported to Eastern Europe or other parts of the world where it is sold or donated.

The following sections summarise the major collection systems for waste in general.

3. Description and evaluation of waste management systems

3.1 Kerbside collection

The municipal waste collection systems most commonly offer kerbside collection of different waste types. This is often organised by the municipalities and financed by a waste fee paid by the households to the municipality. The type of waste that is collected through kerbside collection varies, both among countries and municipalities. Paper is the most common waste type that is collected for recycling through kerbside collection in the Nordic countries. The routine of source separation of paper is well established for the consumers and the recycling rates are high.

A brief overview of the pros and cons of a kerbside collection system is shown in Table 6.

Table 6 Advantages and disadvantages of kerbside collection

Advantages	Disadvantages
Easy access and minimal effort for consumers	Comprehensive transport
Well established system, to add another waste type may requires less effort	Costly
Established communication channels	Increased risk of incorrect sortingwhen used in apartment buildings

The easy access and minimal effort may lead to higher recycling rates, but it may also increase the risk of incorrect sorting due to lack of knowledge and motivation by the consumers. As the kerbside collection system is well established, introduction of a new waste type to the system may require less planning of new infrastructure and new communication strategies than other waste collection system.

3.2 Bring systems: containers/recycling stations

For some waste types, such as glass and metal, the most common collection system is represented by bring systems, which means that the waste is collected from consumers through recycling stations. The con-

sumer has to bring the waste to central points, often placed near grocery stores and other services.

The bring systems are commonly financed by the producers or importers of the discarded products through extended producer responsibility systems or voluntary agreements. This may raise awareness amongst the producers and motivate them to reduce use of material and to design products for reuse and recycling.

The current collection of used textiles in the Nordic countries are currently most commonly collected through a bring system, often organised by charitable organisations. The charity perspective may give the consumer an extra motivation for donating textiles.

A brief overview of the pros and cons of a bring collection system is shown in Table 7.

Table 7 Advantages and disadvantages of a bring container system

Advantages	Disadvantages
Minimises risk of incorrect sorting	Requires some effort for consumer (more transport) May lead to lower collection rates compared to kerbside collections May need measures to reduce theft

As the consumer has done the active choice of bringing the waste to a collection point, it is assumable that the amount of incorrect sorted material is less than for kerbside collection.

The transport need may be less than for kerbside collection because of the central collection points. The consumer may have to drive to the collection point, but it is assumable that the consumer transportation is combined with other errands. However, how the kerbside and bring systems differ with regard to the overall transport loads may be hard to determine.

Depending on whether an implementation of bring system for a new waste type is combined with existing municipal bring systems, there may be necessary to establish separate infrastructure. Existing recycling stations may have special limitations and lead to challenges for adding another waste type, especially for urban areas.

3.3 Bring system: retailers

For some product waste it is mandatory for shops to receive discarded products. This is the case for products such as light bulbs and electric and electronic equipment. The bring systems are commonly financed by

the producers or importers of the discarded products through extended producer responsibility systems or voluntary agreements. Main pros and cons are seen in Table 8.

Table 8 Advantages and disadvantages of a retailer bring system

Advantages	Disadvantages
Minimises risk of incorrect sorting	Requires some effort for consumer May lead to lower collection rates compared to kerbside collections Requires some knowledge and capacity by the retailer

Collection at retailers means that the consumer will bring the discarded product when buying a new product. This is especially relevant for products that are discarded at the same time that a new one is bought, such as vacuum cleaners and refrigerators.

The system requires a system at the shops for collection and storage of the discarded products.

3.4 Deposit scheme systems

A deposit scheme system is established for PET bottles and beverage cans in each of the Nordic countries. The consumers pay an extra fee when purchasing the product that gets returned when it is returned. The return may be done in all shops selling products included in the deposit scheme system.

The deposit scheme systems are financed through extended producer responsibility agreements. The deposit schemes are generally known to have high collection and recycling rates. Main benefits and disadvantages are seen in Table 9.

Table 9 Advantages and disadvantages of a deposit scheme

Advantages	Disadvantages
Economic motivation for consumer High recycling rates No incorrect sorting	Requires some effort for consumer Requires separate infrastructure Requires capacity at retailers

Similar to bring systems to retailer, the system requires collection and storage of the discarded products. The retailers must have knowledge and capacity to control discarded product and refund money.

Deposit schemes are especially suitable for reuse or closed loop recycling. The system requires some sort of identification of the products

that are included in the deposit system to avoid free riders and refunding of deposits that has not been paid by consumer. Normally bottles and cans that are part of a deposit system have a label with the deposit price, and bottles and cans that are not identified are rejected.

4. Conclusions and recommendations

There exist a range of different waste management and collection systems. Each system has its advantages and disadvantages.

There are some crucial factors that must be considered when choosing a waste management system:

- Market.
- Purity (correct sorting).
- Consumer satisfaction.

When establishing a new system, patience is necessary and both time and subsidies may be required. According to WRAP (2009) the amount of space at the collection point and the frequency has influence on the amounts collected. Information to consumers about both how and why is also a key element.

When it comes to finding Nordic systems and solutions it is important to have in mind that what works in one country or area, may not work in another. There may not be one solution that fit all regions and the systems must be adapted to local systems and government

A waste management system is less probable to be successful if there is not a market for the reusable or recycled products. For the commitment to be developed, it is important that current systems are built upon to ensure that the three main factors are not lost. Demands for collection, reuse and recycling will not function if there are no second hand and recycling markets. The purity of collected textiles and consumer satisfaction are of equal importance since collection depends both on an action by the consumer and that it is a correct action.

Future collection systems should evaluate whether the consumer should differentiate between usable and non-usable textiles to separate the two waste streams and reduce the need for sorting.

5. References

Hjellnes Consult (2008). Kartlegging av produsentansvarsordningene, kartlegging våren 2008. Oppdragsgiver Miljøverndepartementet.

WRAP (2009). Choosing the right recycling collection system, June 2009. Available at: <http://www.wrap.org.uk/sites/files/wrap/Choosing%20the%20right%20recycling%20collection%20system.pdf>



norden

Nordic Council of Ministers

Ved Stranden 18
DK-1061 Copenhagen K
www.norden.org

Towards a new Nordic textile commitment

This report is the primary outcome from Part I of the project “Towards a new Nordic textile commitment - Collection, sorting, reuse and recycling” initiated by the Nordic Waste Group (NAG). The report for Part 2 will be published in December 2014.

This report summarizes the work carried out in 2013. The four sub-reports will be the basis for the work to be performed in 2014 with the aim of creating a Voluntary Commitment and a Code of Conduct.

The reports for 2013 are:

- Mapping of current actors in the collection, sorting, reuse and recycling of used textiles and the management of textile wastes
- Literature review of the traceability of global textile flows.
- Definition and documentation of operational and best practice standards in the collection, sorting, reuse and recycling of used textiles and management of textile wastes.
- Comparison with waste management of other waste streams.

The report is part of the Nordic Prime Ministers’ overall green growth initiative: “The Nordic Region – leading in green growth.” Read more in the web magazine “Green Growth the Nordic Way” at www.nordicway.org or at www.norden.org/greengrowth

TemaNord 2014:540
ISBN 978-92-893-2798-5
ISBN 978-92-893-2799-2 (EPUB)
ISSN 0908-6692



9 789289 327985