

Mapping sustainable textile initiatives

And a potential roadmap for a Nordic actionplan





Mapping sustainable textile initiatives

And a potential roadmap for a Nordic actionplan

Ingun Grimstad Klepp (project leader)

*Kirsi Laitala, Michael Schragger, Andreas Follér, Elin Paulander,
Tone Skårdal Tobiasson, Jonas Eder-Hansen, David Palm, Maria
Elander, Tomas Rydberg, David Watson and Nikola Kiørboe*

Mapping sustainable textile initiatives
And a potential roadmap for a Nordic actionplan

Ingun Grimstad Klepp (project leader)

*Kirsi Laitala, Michael Schragger, Andreas Follér, Elin Paulander, Tone Skårdal Tobiasson,
Jonas Eder-Hansen, David Palm, Maria Elander, Tomas Rydberg, David Watson and Nikola Kiørboe*

ISBN 978-92-893-4211-7 (PRINT)

ISBN 978-92-893-4212-4 (PDF)

ISBN 978-92-893-4213-1 (EPUB)

<http://dx.doi.org/10.6027/TN2015-545>

TemaNord 2015:545

ISSN 0908-6692

© Nordic Council of Ministers 2015

Layout: Hanne Lebech

Cover photo: ImageSelect

Print: Rosendahls-Schultz Grafisk

Printed in Denmark



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/nordpub

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

Contents

Summary.....	7
Preface	11
Introduction	13
Definitions and limitations	15
Abbreviations	15
1. Inspiration.....	17
1.1 The four Rs	18
1.2 Replace	19
1.3 Reduce	23
1.4 Redirect.....	25
1.5 Rethink.....	28
1.6 Conclusions	30
2. Stakeholder views.....	33
2.1 Important findings.....	34
2.2 Stakeholder survey.....	34
2.3 Responsibility without means.....	35
2.4 Consumer perspectives in five European countries.....	40
2.5 Other stakeholders	47
2.6 Quality requirements in eco-labels.....	49
3. Methodology development.....	51
3.1 Framework of focus areas.....	51
3.2 Initiative Matrix Template	53
4. Mapping of initiatives.....	59
4.1 Limitations.....	59
4.2 International.....	60
4.3 Nordic initiatives	77
4.4 Conclusions	81
5. Assessment	83
5.1 Important findings.....	83
5.2 Strengths and weaknesses of the initiatives (A)	85
5.3 Unexplored areas and further research (B)	90
5.4 Nordic positions of strength (C).....	97
5.5 Synergies between policy areas (D).....	108

6.	Plan for a Nordic Roadmap	119
6.1	Important recommendations	119
6.2	Scope and limitations	120
6.3	Replace	121
6.4	Reduce	122
6.5	Redirect.....	123
6.6	Rethink	123
6.7	Potential of the four Rs	124
6.8	The whole sector.....	125
6.9	Nordic engagement	126
6.10	Coordinating with international projects.....	128
6.11	Hazardous chemicals.....	129
6.12	Knowledge-building.....	130
6.13	Education, public debate and bottoms-up.....	131
6.14	Goals.....	131
7.	Conclusions.....	133
	References.....	137
	Sammendrag.....	145
	Appendix 1: Feedback from stakeholders on “inspiration”	149
	The introductory letter.....	149
	Feedback from stakeholders.....	151
	Citations of some of the comments	151
	Appendix 2: Eco-label quality requirements.....	155
	Appendix 3: Report from the Global Leadership in Sustainable Apparel Symposium	161
	The 2013 Symposium: Building a sustainable apparel roadmap for the Swedish apparel industry.....	161
	Survey.....	162
	Survey results.....	163
	Appendix 4: Mapping results	171
	Nordic initiatives.....	171
	Danish.....	180
	Swedish.....	189
	Norwegian.....	207
	Finnish	216
	Icelandic	222
	Appendix 5: Project call text	223
	Problembeskrivning och bakgrund	223
	Genomförande – Kartläggning, utvärdering och presentation samt rapportering.....	227
	Kriterier hos anbudsgivare för att kunna utföra en Nordisk kartläggning	229

Summary

This report aims to chart a plan for a coordinated Nordic effort towards sustainable development in textiles and identify ongoing initiatives in the area. The aim was an ambitious plan with a potential for significant reductions in environmental pressures, but also green growth. To reach these goals, we staked out four regions a Nordic plan should include.

1. *Replace fast fashion*

The key to achieving an environmentally significant effect is to reduce the amount of textiles in circulation. This will reduce the production of waste and the use of chemicals.

2. *Reduce resource input*

The perspective is all about reducing inputs in textiles value chain. This includes various forms of circulatory thinking, material efficiency, as well as commercial forms of recycling and waste management.

3. *Redirect global vs local*

Locally produced textiles, with emphasis on ingredients, traditions, uniqueness and innovation, is a new and positive measure that can easily get attention outside environmentally conscious circles. A greater appreciation for good ingredients, and why quality costs, are required to compete with “fast fashion” and shift towards lasting value. Local production has the potential to create green growth and jobs in the region.

4. *Rethink for whom*

Nordic countries are at their best an example of inclusive and democratic societies. The fashion industry however, has marketed itself towards the young and thin. An ethical approach to fashion encompasses not only how clothing is produced, but also who they are produced for and how clothing affects the ability for self-expression and participation in an open society.

Ongoing initiatives

The mapping showed that there were many ongoing initiatives in the Nordic. The work has mainly focused on the perspective of so-called “reducing resource use”. The more established an initiative is, the more likely it is to be low on innovation. An important dilemma surfaces when attention is on better utilization of waste, as this may indirectly contribute to increased growth in volume.

Knowledge and further research

We lack most knowledge in areas with the greatest opportunity for reduction in environmental impact. The knowledge follows an inverted waste pyramid, where prevention, longevity, etc. are very important, but with a low knowledge-level. Another important distinction is between the market understood as an exchange of money and what goes on outside these formal markets, and there is in general little knowledge about the latter parts of the value chain. The report contains a list of knowledge gaps and suggestions for further research.

Nordic positions of strength

- Consumers have little knowledge about textiles in general and the products do not contain information about basic characteristics (durability, quality, etc.) enabling them to make informed choices.
- The Nordic region’s main strength is an ease of dressing for movement and the outdoor elements.
- Handicraft traditions are strong, however they may be disappearing.
- There is some renewal of interest in more local sourcing.
- Reuse and recycling are the main focus, in spite of lack of a recycling industry and limited market.
- High standing as ethically and environmentally concerned region.
- Tradition of cooperating in spite of language and cultural differences.
- Social networks and electronic tools could be used even more.
- Inclusion, democracy and participation are important values.
- There is a lack of common statistics on the sector.

Policy and regulation

The textile industry is international with few global policy regulations. There is a great opportunity for the Nordic region to make a difference.

Suggestions for a Nordic Roadmap

- Avoid symbolic issues and cases, and focus on making a substantial difference environmentally.
- Contribute to a discussion of the relationship between the global and the local in textiles.
- Collectively engage the sector in thinking positive and offensively, being inspiring and visionary.
- The roadmap must work with the whole sector, not just the commercial industry.
- Engage all the Nordic countries and exploit the strength in our differences.
- Ensure knowledge exchange through building on the current state of know-how and the enthusiasm nationally and internationally.
- Acquiring new knowledge where there are obvious blind spots.
- Set specific, ambitious, and achievable (political) goals.
- Support the public debate on central themes.

Preface

This report responds to an invitation from the Nordic Council of Ministers to map out Nordic initiatives within textiles as a pre-study to the initiation of a Nordic Roadmap for Sustainable Textiles in 2015. The work has been conducted by:

- SIFO – National Institute for Consumer Research (Norway).
- SFA – Sustainable Fashion Academy (Sweden).
- NFA – Nordic Fashion Association/nicefashion.org (Nordic).
- IVL – Swedish Environmental Research Institute (Sweden).
- CRI – Copenhagen Resource Institute (Denmark).

Nordic Committee of Senior Officials for Environmental Affairs (EK-M) has been responsible for the funding of this project. The project's steering committee consists of representatives from members from the working groups; Nordic Chemicals Group (NKG), the Nordic Waste Group (NAG) and the Group of sustainable consumption and production (SCP) and officers from the Environmental Protection Agency in Denmark. This steering Group is jointly responsible for the direction and decisions regarding the project. NAG has been coordinating the work. Coordinator of project has been Yvonne Augustsson from the Swedish Environmental Protection Agency.

Introduction

This report responds to an invitation from the Nordic Council of Ministers to map out Nordic initiatives within textiles as a pre-study to the initiation of a Nordic Roadmap for Sustainable Textiles in 2015.

The overall objective is to contribute to scoping the content of a Nordic Roadmap on Sustainable Textiles whose aim will be to reduce the environmental impacts of the consumption and production of textiles purchased and/or produced in Nordic countries.

The work has been conducted by:

- Ingun Grimstad Klepp (project leader) and Kirsi Laitala from SIFO (National Institute for Consumer Research, Norway).
- Michael Schragger, Andreas Follér and Elin Paulander from SFA (Sustainable Fashion Academy, Sweden).
- Tone Skårdal Tobiasson and Jonas Eder-Hansen from NFA (Nordic Fashion Association/nicefashion.org).
- David Palm, Maria Elander and Tomas Rydberg from IVL (Swedish Environmental Research Institute, Sweden).
- David Watson and Nikola Kjørboe from CRI (Copenhagen Resource Institute, Denmark).

The work is based on the problem description in the tender document provided by the Nordic Council of Ministers. This emphasizes that issues that should be tackled by the Nordic Roadmap include questions concerning the volume and growth in demand for new textiles, the use of chemicals and resources during textile products' lifecycle, and on specific aspects of the way textiles are produced and consumed.

The overall goal of a Roadmap is environmental improvements. This means that in areas where there are potential significant impacts for environmental improvements, these will be prioritized. The plan will also include the potential for other benefits. For the Nordic textile industry, other benefits can be green growth, both through a bigger share of the Nordic market and through export. For Nordic consumers this could represent a textile and apparel production more in line with consumer's actual needs and clothing practices. This dual objective can only be

achieved through an innovative Roadmap, building on existing, emerging initiatives and new thinking.

The report is organized the following way:

- Chapter 2 includes the first document called Inspiration that was written in order to define the areas the mapping should focus on, but also to get feedback from stakeholders. The document has been important in pointing the direction for the further work within the project.
- Chapter 3 summarizes our knowledge on stakeholder views on environmental challenges in the textile sector based on recent research reports.
- This is followed by a method chapter 4 for mapping of initiatives. The initiatives are then listed starting from international, Nordic and finally the national Nordic initiatives in chapter 5. These are then used in assessment chapter 6 that answers the questions given in the tender.
- The chapter 7 gives suggestion/input on how the plan for sustainable roadmap could be formulated, and chapter 8 the main conclusions.

The report is structured in a similar order as the mapping work was done, with one exception. The description of the international initiatives was made early in the project at the same time as the inspiration document was written. The purpose of this was that input from the international work could give inspiration to our mapping, rather than to map all the possible international initiatives. Therefore, they are not presented in the same way as the Nordic initiatives. However, they are given in the same section with the Nordic because we think this would be more logical for the reader.

The tender document divides the project tasks in two parts, part 1 Mapping and part 2 Evaluation. Results for part 1 can be found in chapter 5 and Appendix 4, while evaluation is made in chapters 6 and 7. These consist of following topics:

- A. Strengths and weaknesses of the initiatives.
- B. Unexplored areas and further research.
- C. Nordic positions of strength.
- D. Synergies between policy areas.

The purpose of this report is to answer these questions about the work within environmental issues in the textile field in the Nordic Countries.

- *For the impatient reader who wants to know the answers to the questions, we recommend starting on chapter 6 and continuing to chapter 7.*

Definitions and limitations

Consumption and production were not defined in the tender document. With respect to “consumption” we understand this to cover the procurement, use and disposal of textiles both by individuals, government and business. “Production” includes both what is produced in the Nordic countries, and the production of imported products placed on the Nordic market. With the “textile and apparel sector” we refer to both production and consumption.

The scope of textile products that are covered by the mapping initiative are not specified in the tender document. We interpret the textile area as covered by the mapping exercise to cover clothing and light home textiles for public and private use. This means that we have not specifically included industrial textiles and fabrics in vehicles, shoes, carpets, upholstered furniture, fishing nets etc. where this is not easy or particularly appropriate. However, some of the results may also be relevant to these products. The scope of the further work with NRM should be discussed, see section 7.2.

The mapping will focus on projects and initiatives that have extended into the 2000s. Only where particularly relevant, will older initiatives be included. We will not include specific company-related initiatives unless they represent a cooperative effort among several stakeholders.

Abbreviations

ABRAPA/ABR	Brazilian Cotton Growers Association
BCI	Better Cotton Initiative
BM	Business Model
C2C	Cradle to Cradle
CBS	Copenhagen Business School
CMiA	Cotton Made in Africa
CRI	Copenhagen Resource Institute

CWCW	Chemicals, Water, CO ₂ and Waste
DEFRA	The Department for Environment, Food and Rural Affairs (UK)
ED	Excluding design
EPR	Extended producer responsibility
FF	Fast fashion
FWF	Fair Wear Foundation
GMO	Genetically modified organism
HKP	Group for sustainable consumption and production (Gruppen för hållbar konsumtion och produktion)
HRH	His/Her Royal Highness
IAF	International Apparel Federation
ID	Including design
IEH	Initiative for Ethical Trade
IRS	Intelligent Resource Stewardship
IVL	Swedish Environmental Research Institute
IWTO	The International Wool Textile Organisation
KEA	Copenhagen School of Design and Technology
NAG	Nordic Waste Group (Nordiska AvfallsGruppen)
NBM	New Business Model
NCA	Natural Capital Accounting
NCC	Natural Capital Coalition
NCM	Nordic Council of Ministers
NFA	Nordic Fashion Association
NICE	(nicefashion.org) Nordic Initiative Clean & Ethical
NKG	Nordic Chemical Group (Nordiska Kemikaliegruppen)
NRM	Nordic Roadmap
OSG	Off-shoring globally
OSL	On-shoring locally
RESP	Responsible Ecosystem Sourcing Platform
RM	Roadmap
SAC	Sustainable Apparel Coalition
SASTAC	The Southern African Sustainable Textile and Apparel Cluster
SCAP	The Sustainable Clothing Roadmap and Action Plan (UK)
SFA	Sustainable Fashion Academy (SE)
SIFO	National Institute for Consumer Research (NO)
SVHC	Substance of very high concern
TE	The Textile Exchange
WRAP (1)	The Waste & Resources Action Programme (UK)
WRAP (2)	Worldwide Responsible Accredited Production

1. Inspiration

The overall goal of a Roadmap will be environmental improvements. The Nordic Council of Ministers also wanted a plan with potential for other benefits for the Nordic region such as green growth and synergies between sustainable consumption and production.

To determine areas that together would make it possible to create a roadmap with this broad and ambitious goal, it was initially necessary to identify areas or rather regions we wish to enter into that could give a direction for the mapping and evaluation. The application document proposed that the following criteria could be used for guiding prioritization of components for inclusion in the Roadmap:

1. Will it give reasonably significant reductions in environmental pressures caused by Nordic consumption of textiles?
2. How easy is it to implement?
3. Does it require nurturing or is it self-sufficient?
4. Is this an area where the Nordic countries can play a leading role?
5. Will it contribute to green growth and jobs in Nordic countries?
6. Contribution to better clothing for Nordic consumers.

We have used these six questions in selection of main study regions, which are Replace, Reduce, Redirect and Rethink. We have called this starting point an inspiration, and present here the four Rs that we have chosen to be the landscape of the roadmap. The evaluation of regions based on these criteria is carried out under section 7.7.

Different versions of this chapter have been read and discussed by the consortium steering committee and various stakeholders. A description of the work and of the feedback is found in appendix 1.

1.1 The four Rs

We will now present the four Rs or regions we have chosen. First with a short summary and then with a broader presentation and discussion.

1.1.1 *REPLACE: DDT (Design Destined for Trash) with W2W (Wonderful to Wear)*

- Increase longevity and quality of individual products and at the same time reduce the volume (though not necessarily value) of consumed new textiles through new approaches and business models for the Nordic fashion and textile sector.
- Securing consumer rights and access to information which contributes to prolonged and active use.
- Better labeling of technical quality, care, durability and user properties and origins.
- Education and capacity building of industry and citizens.
- Increase wardrobe stewardship through reactivating and sharing rather than purchasing.

1.1.2 *REDUCE: CWCW (Chemicals, Water, CO₂ and Waste), implement IRS (Intelligent Resource Stewardship)*

- Reduce chemical, water, energy use and waste and emissions outputs through better regulation, environmental footprint and quality labeling-schemes and good purchasing standards.
- Reduce water, energy and chemical use in private and public laundering by reducing wash-frequency and improved laundry methods.
- Increased collection reuse and recycling of used textiles in part through better and more integrated systems for commercial and public collection and handling.

1.1.3 REDIRECT: OSG (Off-shoring globally) to OSL (On-shoring locally)

- Encourage and facilitate local value-chains – ensuring access to quality production of local apparel and textiles.
- Use the Nordic Cuisine commitment as an example and show-case the environmental, social and employment benefits of on-shoring, home production and coproduction.
- Skewing global towards local (glocal) to spearhead a better understanding of value and longevity.

1.1.4 RETHINK: ED (Excluding design), implementing ID (Including design)

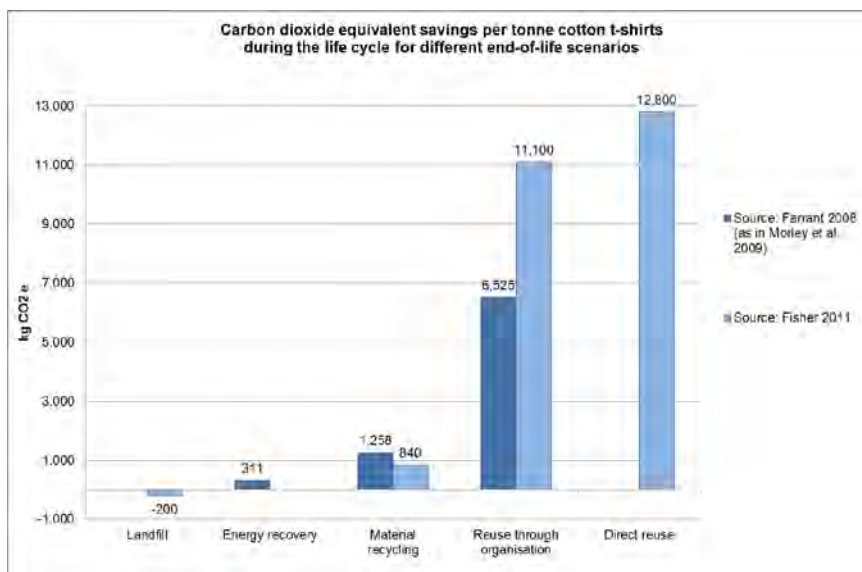
- Aim for a market that offers good and sustainable apparel for all citizens, through fit and flexibility.
- The Nordic region aims to be an inclusive and democratic society, but democratic fashion has been related only to price while the clothes have been designed for the young and thin, excluding people with different needs.
- Including design encompasses an ethical approach related to how affects life-quality and self-expression of the user.

1.2 Replace

A rapid and an incremental increase in consumption of textiles is the main challenge. The documentation available also shows the most effective environmental gains come through a reduction in production and consumption. Several life cycle assessment (LCA) studies have demonstrated that the greatest environmental benefits can be obtained through increased clothing lifespans and reuse, which reduces the consumption of virgin materials, energy and water in addition to reducing the greenhouse gas emissions related to the production of new textiles (Farrant *et al.*, 2010; K. Fisher *et al.*, 2011; McGill, 2009; Woolridge *et al.*, 2006). The benefits of longer clothing lifespans are presented in figure 1 that gives results from two life cycle assessment studies on cotton t-shirts. Both studies compare different end-of-life scenarios and document the environmental impacts across the textile lifecycle (Fisher *et al.*, 2011; Farrant 2008 as calculated in Morley *et al.*, 2009). In Sweden, the amount of textiles consumed has increased by 40% between 2000 and

2009, and the Danish yearly consumption of textiles has increased by 36% from 2003 to 2010 (Tojo *et al.*, 2012). In the Nordic region we consume around 13–16 kilos per year. That amounts to more textiles than we can possibly wear out.

Figure 1: Comparison of different end-of-life scenarios of cotton t-shirts and the potential saving of kg CO₂ equivalent per tonne textiles during the lifecycle



Volumes and life-span are issues addressed in several initiatives. But what qualities do clothes that are actively used over time have? Why do we get rid of our clothes? What is the basis for the failed relationships? And most importantly: How can companies integrate this into their business models and implement/integrate this knowledge into their collections and production? The Local Wisdom project has tried to look at this,¹ and according to WWD, the website renting out designer apparel, Rent the Runway, is amassing extensive knowledge in this area. However, this is not information that has been systematically studied or made available.

Of the international initiatives mapped, only one or two are approaching these concerns linked to longevity and volumes and only in an indirect manner, and none set clear or ambition goals for this type of reduction. EcoMetrics (a privately owned UK-generated assessment tool, Colour

¹ Fletecher, Kate <http://www.localwisdom.info/>

Connections, 2011) and the Higg Index (Sustainable Apparel Coalition's work-in-progress tool, 2012) are trying to incorporate longevity as a factor. To really talk about Life Cycle Assessment in the true meaning of the expression, the user-phase needs to be included with relevant statistics.

UK's Sustainable Clothing Action Plan (SCAP) evaluated the financial viability and resource implications for new business models in the clothing sector (Buttle, Vyas and Spinks, 2013). The research takes into account realistic estimates of the required investment, operating cost and sales value. The options range from large-scale hiring of design clothes to retailers offering re-sale of pre-owned garments. The inclusion of new business models in SCAP mainly aims at providing a starting point to raise interest and begin the discussion about alternative business models.

There are many reasons that the area where the environmental impact can be the greatest has not properly been taken into account in the global discussions. It is a challenge politically, commercially and intellectually. But it is exactly for this reason that a Nordic Roadmap (NRM) can be both ambitious and innovative.

What can we envision? A reduction of 30% by weight in consumption of new textiles would bring us to a 1993 level of consumption. Were we lacking in amount of clothing 20 years ago? A reduction of 50% would even be possible, and still a goal of dressing warmly and looking good for any occasion would be easily achieved. Or put in another way: How many kilos per person per year would be a good number? The current tools that look at environmental impacts are weak on the user phase, as little is known on the number of uses.

Such a reduction in volume does not by any means translate to a reduction in economic turnover of their textiles sector in Nordic countries, but rather a change in how businesses provide access to textiles. Looking at new business models (NBMs) is already happening on several arenas in the Nordic region (see for example Watson *et al.*, 2014). NBMs have triggered the interest of the industry and of learning institutions. Quality, longevity and services are an important part of the considerations. Turning the argument around, one could say that today's BM is broken, not only in relation to resource-use but also in relation to economics. The industry produces increasingly cheaper and larger volume of products, at the same time gaining less of consumers' disposable income (Perry, 2010; European Environment Agency, 2014). Over time, this business model is not sustainable. The speed of the production and change-over also makes control-systems, information and labeling less feasible. The Nordic Council of Ministers project on EPR and New Business Models (Watson *et al.*, 2014) identifies improved quality and dura-

bility of textile products as a critical element of all new business models which aim at increasing the active lifetimes of textiles via reuse or otherwise. However, increasing quality also supports these business models in an indirect way by raising the price of new textiles and thus making business models based on repair, leasing, resell etc. more economically attractive to consumers.

Seen from a consumer-perspective the media-focus on the shadier sides of textile production, the irritation with clothing that pills, unravels, changes shape and the unpleasantness of disposing of apparel is translating into actions like “shop stop” and general concern about the consequences of Fast Fashion. The actual lack of variation and information in relation to textile is also encouraging a resurgence in crafts, swapping and vintage-shopping.

A change in amount and speed is intellectually challenging also because more than other consumer-goods, apparel is linked to the notion of fashion. Changing the focus to good materials, work-hours involved, beauty of craftsmanship, memories or functionality will take time. At the same time, there is consensus that the clothes we cherish, use time and again, and care for – are the clothes with the least environmental impact. The industry focus on “buying something greener” however is more a tweaking of the current BM, and only solves a problem if the “greener product” replaces a product that needs to be laundered or dry-cleaned often. This discussion continues under “Reduce”.

A main argument for the Nordic region taking a lead in this area, is the fact that the Nordic textile sector is dominated by buying, sales and consumption; not production. Whatever is left of our textile industry is already curved by strict environmental regulations. Improvements in the value-chain therefore entail others to follow our rules and regulations (voluntarily through eco-labeling or through international policies). Consumption, on the other hand, takes place here. This is also where we have access to knowledge and open debate. Moreover, many of the new business models which are based on increasing the active lifetime of textiles via repair, reuse, leasing etc. rely on local jobs close to the consumer rather than production jobs in Asia. Therefore this paradigm shift in business approaches can be a positive job creator in the Nordic region. Replacing DDT with W2W will entail close cooperation between industry, authorities and civil society. This is easier to implement in a region with shared values, i.e. the Nordic region.

1.2.1 Discussion and Dilemmas

Politically and within industry, a reduction in the volume of consumption (or in the speed of growth) is perceived as far more problematic and provocative than iterative technological improvements in the production chain of goods. This is because it essentially challenges the current business model. Perhaps textiles is the arena to address this? Few will claim we are better dressed today than in 1993, yet our closets and drawers are more cluttered. Important in this discussion is therefore finding how a reduction (in weight, amount and resource-use) does not affect a reduction in the goal (staying warm and well-dressed) or in a deterioration of the economic basis for the textile-industry. Rather the replacement should be from many, low quality and cheap to fewer, good quality and more expensive.² This is also an area where there has been little development and with few tools. At the same time this opens up for Nordic leadership.

1.3 Reduce

This effectively concerns iterative improvements in the resource efficiency of the production chain and/or use and end-of-life of textile products. As a result of the dilemma identified above, this is the area where the most work has been done by diverse initiatives in the Nordic region, but also internationally to date. This includes adopting LCA approaches, closed loop thinking, resource efficiency, cleaner production methods, better design and other types of approaches to reduction of environmental harm in the value-chain. The focus has been on production and control of the inputs, alongside commercial recycling and waste-management. Recently focus on use phase, especially the environmental effects of laundering, has also been put on table in the UK (A.I.S.E. 2009; Madsen *et al.* 2007).

² Physical durability is often connected to clothing quality, but consumers perceive clothing quality to include also other features that can be either concrete, objectively measurable facts, or abstract, subjective features. They evaluate these qualities based on extrinsic, intrinsic, aesthetic and performance cues such as price, brand, fiber content, and how fabric feels (Hines & Swinker, 2001). The ISO 9000 (2005) standard's definition of quality is the "degree to which a set of inherent characteristics fulfils requirements". Therefore, quality is a question of degree. High quality can be achieved if all inherent characteristics meet the requirements, while the opposite is true for low quality.

This focus is well covered in the international initiatives. Much has been done in these issues, and there are several good suggestions for solutions and policies on the table that will give substantial impacts. At the same time, many of these initiatives are problematic because they do not address growth in volumes of new textile purchases. One can use return-systems to legitimize and keep up the current speed of consumption. A closed loop is preferable to a resource-to-waste loop; but what if whatever is to be recycled has not even been used or is far from ready for a “cradle”? Palm *et al.* (2014) finds that there is almost no closed loop recycling of textile waste generated in Nordic countries. The amounts that are recycled are down-cycled as insulation material, fill, industrial rags etc.

Another problem is that increased recycling/reuse through collection-systems, presumes an equivalent increase in markets for second-hand clothing and/or recycling of fibers – the latter has so far not proved feasible on a large scale yet, in spite of extensive research and investments (Morley *et al.* 2006). The price for collected textiles did, however, increase significantly during the period 2002 to a high point in 2013 but has since seen some reductions (Elander *et al.* 2014).

Private reuse and recycling is one of the areas where knowledge and actions are limited. We see several potential areas for improvement here. Public procurement is mentioned in the call, and also for this area production is stressed much more than impact during actual use. Looking at the impacts of disposable vs durable textiles in the health sector, looking at the impact of weight of textiles, odor-properties, moisture-wicking, etc are areas that can prove to have a substantial environmental and health impacts.

1.3.1 Discussion and dilemmas

It will prove important to continue and build on the current work undertaken to improve the value-chain, but at the same time ensuring that this is put in to perspective. Specifically in relation to growth in quantities of new textiles consumed. We need a debate about the informal channels for clothing reuse vs the formal and commercial measures and instruments. This is an area where we find big discrepancies in knowledge outside “the businesses” who handle reuse and recycling; and there are few good practices in the international initiatives that address the private and informal reuse-cycles.

1.4 Redirect

The most important local fibers in the Nordic region are wool in Norway, Iceland, the Faeroe Islands; linen and viscose in Sweden and Finland – but there is also a potential protein-based waste from the fishing-industry and other types of fibers. In addition, we have fur, pelt and leather production that is large not least in Denmark. Local production can be understood both as value-chains within a country or Nordic region; or based on even more regional processes, from a farm or a geographical area within a country (the latter has been important for the Nordic Cuisine movement). Local production can cover all or some of the value-chain, and can be both artisan and industrial handling.

The interest for local food has increased in the Nordic region, and the New Nordic Cuisine has been a success thanks to the backing from the Nordic Council of Ministers (NCM, 2008). This focus is not only about the local raw materials and how they are used, but includes a set of values, cultural traditions, local character and innovation (Terragni, Torjusen, and Vittersø, 2009). Fashion Enter (UK)³ and the Fashion Manufacturing Initiative (US),⁴ along with Wal-Mart's concrete promise to source in the USA, show the increased interest for local apparel. Short lead-times, better volume-management are arguments given for this change.

This new push for more local value-chains is to a little degree included in the international initiatives we have identified. Perhaps the lack of understanding how, when and if they can contribute to environmental gains in an international perspective where volume and complicated value-chains dominate, is part of the reason for the lack of inclusion. Trade regulations on textiles differ from those for food, and can create problems that need to be addressed, as do labor-costs in Europe – though recent focus on migrant workers in the Italian tomato-farming has uncovered how “living wage” is not just a problem outside Europe. So one could claim that a lack of global standards on environmental and labor issues makes for an uneven playing-field. On-shoring would be more economically viable if the same standard demands applied everywhere.

How this focus is covered in the international initiatives (only the international initiatives relevant to this focus area are included here, not any Nordic – as we will discuss these later on):

³ <http://www.fashion-enter.com/>

⁴ <http://cfda.com/programs/the-fashion-manufacturing-initiative>

- In the project Fibershed (2013), run by Rebecca Burgess in the US, there has been done a mapping of the basis for a local value-chain based on wool in California, including a set-up for a scouring mill, a spinning facility and both knitting and weaving machines to service North Face and Patagonia.
- Fashion Enter (UK) has a factory for large scale production and a Fashion Studio for grading, sampling and small productions runs. Both units are Sedex approved and produce for leading retailers, etailers, designers and new business startups. This is part of the On-shoring movement.
- Fashion Manufacturing Initiative (US) has been launched by the Council of Fashion Designers, an investment fund which aims to revitalize New York's fashion production industry, underwritten mainly by Ralph Lauren.

Including local production in a NRM has several benefits. The best practice established by the Nordic Cuisine movement, and synergies have already been established at international fashion events in e.g. Shanghai – engaging beyond the “eco-community”. Apparel, artisan products and textiles are important souvenirs and compliment experience and adventure tourism. The close interaction between cultural landscape and nature, either in the form of grazing heaths or forests – and the finished products – give local textile products an extra dimension both in the form of pride but also as heritage products. In addition, the Nordic region has a rich textile history begging to be revitalized and commercialized to scale. Local apparel and textiles can increase jobs, enthusiasm and Nordic character. In addition it could contribute to technological improvements, rural growth and a new impetus for the industry.

In the Nordic region, the few production facilities that remain are subject to strict environmental regulation. The few who have survived the last 40 years of increased out-sourcing, have survived because of design, productivity and quality (Klepp and Tobiasson, 2013). They are therefore equipped to tackle the competition in relation to the changes happening globally. As designers are increasingly looking to local production capacity to ensure both ethical and environmentally safe apparel, the value-chains that have been disintegrating are slowly being reactivated (Klepp and Tobiasson, 2013).

The most important reason, however, to include this perspective – is how it can contribute to a more sustainable future. We need best practice products that are innovative, or perhaps inspired by something old and lasting. For example, we could use the inherited traditions (heir-

looms) and a revitalization of real luxury – where materials, craft and design are exquisite. Louis Vuitton and Mulberry are companies who have successfully capitalized on such thoughts.

Local production also raises the question of the relationship between production and consumption, often discussed under the heading presumption. To what degree are consumers able to participate in the design and development of their clothes and textiles? The interest for creating clothes, knitting and other crafts is increasing; alongside participating via different social and media platforms in co-creation (Bik Bandlien and Klepp, 2010). It could be interesting to cross-pollinate these two trends, as they represent arenas for building competence and engagement. There are older, traditional organizations with large memberships ready to jump into this space – as well as blog-communities dedicated to handicrafts, textiles; but also wardrobe stewardship and caring for clothing. In reaching a goal of a more sustainable textile and apparel consumption, we are dependent on knowledge among consumers and on a service-community with competence on care, repair, redesign etc. Apparel and textiles have so far not been given priority in education, and it can be a good idea to include plans for a school curriculum in a NRM. There are a few initiatives: “Guide and short movie made for schools and young adults” commissioned by NCM, “From consumer kids to sustainable childhood”, a report from World Watch Institute Europe who have just launched an app – and a proposal is being developed through BSR Culturability for a #GooDeed app for young adults and first movers educating through gaming and nudging, aiming at behavior and attitude changes in wardrobe stewardship. It can also be possible that the Nordic region has better competence on artisan techniques related to textiles than e.g. in the UK and US. Also on this, research is lacking.

1.4.1 Discussion and dilemmas

Local value-chains are not mentioned in the call, and not included in the major international initiatives. There will be a need to explore whether this is a perspective that can actually enrich a NRM, making it innovative and futuristic; or if going down this road is a dead-end. However, during the recent meeting in Copenhagen discussing Manufacture Copenhagen/Scandinavia, the need to revitalize more local production was at the

forefront of the discussion, and seemed to resonate with the participants (NFI, 2014a).⁵

Another question is to what degree local resources are seen as “kosher”. One example is hemp, which is forbidden to grow in several Nordic countries. Another is fur from farmed and caged animals, a material that arguably makes environmental sense as it is both highly prized and represents longevity. But fur is controversial, to say the least. Wool also meets many stumbling blocks when it comes to animal welfare, to being one in the Nordic region – however predators and animal stress has been an issue with animal rights organizations. This goes to show that environmental benefits can conflict with public opinion in animal welfare

1.5 Rethink

Democratic and inclusive contributes to the wearer and user a feeling good about him- or herself and offering the possibility of participating in society. Ethics are mainly understood as questions related to production and the perspective of reduce with focus eras like child labor, living wage, safety and animal welfare, and is an important ingredient in many of the international initiatives. Some of the work relating to ethics is closely linked to the issues under “reduce”. Ethics are, as an example, part of the criteria for eco-labels like the Nordic Swan that state criteria for working conditions and animal welfare (Nordic Eco-labeling, 2012), and in procurement regulations. But just as is the case with environmental issues, the main focus has been on the production, not on what is actually produced. In this area, apparel is lagging behind other product-groups. For cars and household appliances, energy consumption in use is an important issue. “Rethink” is about taking the entire value-chain seriously, and that means taking the products and how they are marketed to the consumer, seriously.

As part of the visual focus on fashion, rather than function and quality; the fashion industry has been an arena for exclusion. However, looking at the history of fashion, this is not surprising. Fashion was originally for the elite, for royalty and gentry – not for the masses. Mass-production changed this, and opened up for standardization and a new

⁵ <http://nordicfashionassociation.com/news/manufacture-copenhagen-0>
http://www.norwegianfashioninstitute.com/#news_1989

way of exclusion. Without going into the history of sizing, or the fashion dichotomy, we can establish the fact that consumers who do not fall into the current ideal of size 36 (for women) may have a harder time to find something that is wonderful to wear (W2W) (Laitala, Hauge and Klepp, 2009). This is of concern for the “graying” population, for size plus and for those groups of the population who do not fit into the sizing standards – e.g. handicapped. Clothes are, however, a prerequisite to participate and interact in our society. In the five themes of Nordic cultural cooperation 2013–2020, it is stated under “the sustainable Nordic region” that access and engagement is paramount, through “integration and inclusion, health, education and creativity”. Apparel is also important to stay physically active, as certain clothes hinder while others encourage, activity. We also have examples from the Norwegian military, on comfort of wool underwear ensuring the participation of women in extreme conditions (Klepp og Tobiasson 2014).

A focus on inclusive design could reinvigorate the important work that was undertaken in the Nordic region, mostly in Sweden, to develop better children’s clothing around the 1950’s. The focus was on “the good childhood”, how to dress for outdoor activity and movement (Boalt and Carlsson 1959). In Norway we have seen a good development for pre-schoolers. Focusing on clothing as an esthetical expression has preempted functionality – which of course could easily be integrated with W2W. Little has been done for handicapped, or those with functional challenges, in spite of political focus on marginalized groups and their integration into society and a more active lifestyle (Bjerck 2013). In addition there is concern about the low self-esteem and eating-disorders, as social media and other arenas “dictate” what is and what is not acceptable appearance and attire. Media, perhaps more than the fashion/apparel industry, has taken a lead on “corseting” the public.

Many of the initiatives include both environment and ethics, but the ethics are understood to be about “the others”, important issues have been child labor, living wages and safety. Through including an ethical perspective that addresses the issue of “us”, the NRM could become visionary and actually build on Nordic values and traditions. What represents “good” textiles and clothing in the Nordic region? How can clothing contribute to a democratic, inclusive society with healthy and active citizens?

There is a lot of media focus on ethical issues, relating to living wage and to the safety of the workers, after the tragic factory fires (Burke

2013) and building collapse – which has also resulted in demands politically that we need labeling schemes for apparel that go beyond the fiber content.⁶ This is what the Higg Index is focusing on, and will most certainly be one of the leading initiatives when it is fully developed and implemented in a consumer-facing form. When the Nordic Fashion Association launched “democratic fashion” as part of their push for New Nordic Fashion last year, it was more in the sense of economy: Easy access to fast fashion. But if we look to examples of how Nordic designers have contributed to better clothing ensuring e.g. better movement, more activity and access to social settings – the discussion becomes more interesting and revolutionary. We will expand more on concrete examples in the section that gives the reasoning of focal areas.

1.5.1 Discussion and dilemmas

Including “inclusive” in a NRM is not based on the issues raised in the call, and is also not part of the initiatives internationally. At the same time the issue of ethics is a hot theme politically with a lot of media attention; specifically related to child and forced labor, and the conditions in the textile factories. We need to discuss what role ethics should have in a NRM and if the focus should be the usual – production – or go beyond this perspective to what is produced and for whom.

A number of Focus areas are identified within each of these four regions (The four Rs). These will be used in the process of mapping the Nordic initiatives and in the discussion of what the Nordic Roadmap will include.

1.6 Conclusions

The four Rs were not obvious – and may be a controversial choice for a NRM. Still, when we have chosen follow this route, and have used the regions for the mapping and assessment, it is because this allows for an ambitious and original plan. There have been no significant objections to the four Rs during the work. To innovate is not easy, and one major challenge has thus been to explain what the different perspectives are and what kind of landscape we want to enter into. Another lesson is that if

⁶ http://en.wikipedia.org/wiki/2013_Savar_building_collapse

you want to do something a little different, this increases the requirements for documentation and argumentation. Much of this is outside of this report's task. However, in Chapter 3, a summary of for some of the background for choices of the four Rs can be found.

2. Stakeholder views

This section contains views from stakeholders involved in environmental challenges in the textile sector. During the project, it has not been possible to undertake major new studies. Therefore this is based on several earlier studies conducted by SIFO and SFA. The main results are summarized here.

It is of course possible to discuss who the stakeholders for such a wide field as the textile sector actually are. We have chosen to prioritize consumers, which is of course the main group and an important group in a restructuring process. In addition, we have a study in which stakeholders are people in the textile industry. The surveys are all recent. The purpose of referring to these, is that they document and justify the choices we make in priorities for a NRM. This chapter includes also a comparison of quality requirements given in eco-label criteria for textiles. This is done, because the feedback we received on inspiration document indicated that many stakeholders thought that eco-labels do not only address Reduce, but also Replace.

Only the main findings and conclusions are summarized in this chapter. For more information, see the original reports that include more details on methods, theory, and literature. The chapter is structured so that we start with the claims which we have drawn from the reports and which have direct implications for a NRM, followed by a fuller summary of the studies. The content of the chapter is thus:

1. Important findings for the NRM.
2. Conclusion from a SFA stakeholder survey (the report is given as Appendix 3).
3. Responsibility without means (summary of an article by SIFO).
4. Consumer perspectives (conclusion from a SIFO report).
5. Stakeholder interviews in Norway (conclusion from a SIFO report).
6. Quality requirements given in eco-label criteria for textiles.

2.1 Important findings

Consumers

- Environmental considerations are the lowest priority for the consumers when buying clothes.
- A majority of the consumers emphasize quality and durability.
- There are no labeling systems for clothing that gives information of these properties to the consumers.
- Consumers think that buying fewer clothes and using them longer is easier to implement than washing less or buying eco-labelled apparel.
- The preferred reuse channel is giving to friends or family, followed by delivering to reuse/recycling organizations.
- Consumers' level of textile and fiber knowledge is low.
- Boycott is more common than buycott, i.e. it is more common to refrain from buying specific things than to select a particular brand or product due to environmental reasons.
- Taking into consideration the consumers' knowledge-level and attitudes, a change in consumption-patterns will not happen without a push from industry and policy-makers.

Other stakeholders

- There is an increasing understanding of the environmental impacts of textile production among all stakeholders.
- It is difficult to regulate international value chains.
- The stakeholders disagree who has the responsibility and what would be the best solution.
- There is a common understanding that governments have an important role to play.

2.2 Stakeholder survey

This section is based on a report from the *Global Leadership in Sustainable Apparel Symposium* conducted by SFA.

In 2013 the Antonia Ax:son Johnson Foundation for Sustainable Development hosted a workshop aimed at exploring if the SCAP model could inform actions at the Swedish, Nordic or European levels. Ninety experts from the Swedish, Nordic and UK apparel industries attended. Participants

included business leaders and entrepreneurs, politicians and policy makers, researchers, civil society representatives, media and investors.

The 2013 Global Leadership Award in Sustainable Apparel was awarded to the United Kingdom agencies The Department for Environment, Food and Rural Affairs (DEFRA) and The Waste & Resources Action Programme (WRAP) in recognition of the leadership they have demonstrated by initiating The Sustainable Clothing Roadmap and Action Plan (SCAP).

SCAP's aim is to improve the sustainability of clothing across its life-cycle by bringing together industry, government and the third sector to develop sector-wide targets, along with tools and guidance to help the industry reach them. To ensure we did not miss any critical insights or recommendations, SFA sent a follow-up survey

The follow-up survey was answered by 52 respondents representing companies, industry organizations, governmental agencies, experts and NGOs, participating in a full-day workshop in Stockholm in January 2013. The survey responses should be viewed in the light of a few critical assumptions that were made at the workshop:

- Although there are many very important initiatives addressing sustainability challenges in the apparel sector, these are necessary but not sufficient to ensure the apparel sector survives, thrives and contributes to significant solutions addressing today's sustainability challenges.
- Preparing for the future requires planning with a longer term horizon in mind – not just 5–10 years, but 25 years and beyond.
- A holistic approach is needed where governments, civil society actors, investors, researchers and media create the conditions needed to ensure the apparel industry (companies, entrepreneurs, etc.) develops significant sustainability solutions.

The answers to the survey are given in Appendix 3.

2.3 Responsibility without means

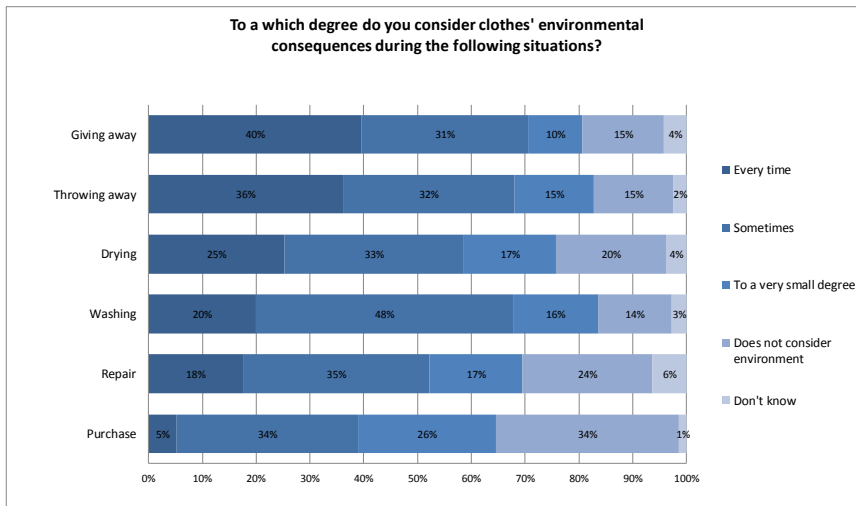
The article "Responsibility without means: Consumer behavior and sustainability of textiles and clothing" by Kirsi Laitala, Marthe Hårvik Austgulen and Ingun Grimstad Klepp was published in 2014 in "Roadmap to sustainable textiles and clothing, volume 2: Environmental and social aspects of textiles and clothing supply chain". This article au-

thored by SIFO provides information on how changes in consumption of clothing can contribute positively to environmental impact, and consumers' attitudes related to these various changes. Here we will highlight a few points of importance for selected focus areas for NRM. The first concerns during which consumption phase the consumers consider the environment, and to what extent. The second concerns level of knowledge related to textiles and the environment.

2.3.1 Ability, knowledge and willingness to change

As illustrated in figure 2, consumers say they mainly take environmental concerns into account in the disposal phase, followed by the use-phase. Less consideration is given to environmental issues when clothing is purchased and when the actual opportunity to influence is at its greatest. This is when raw material, production and all ethical and environmental issues up till the consumer phase can be made available to the consumer. In other words, the willingness to act in a sustainable manner is highest in the phase where the potential environmental impact of changed behavior is lowest.

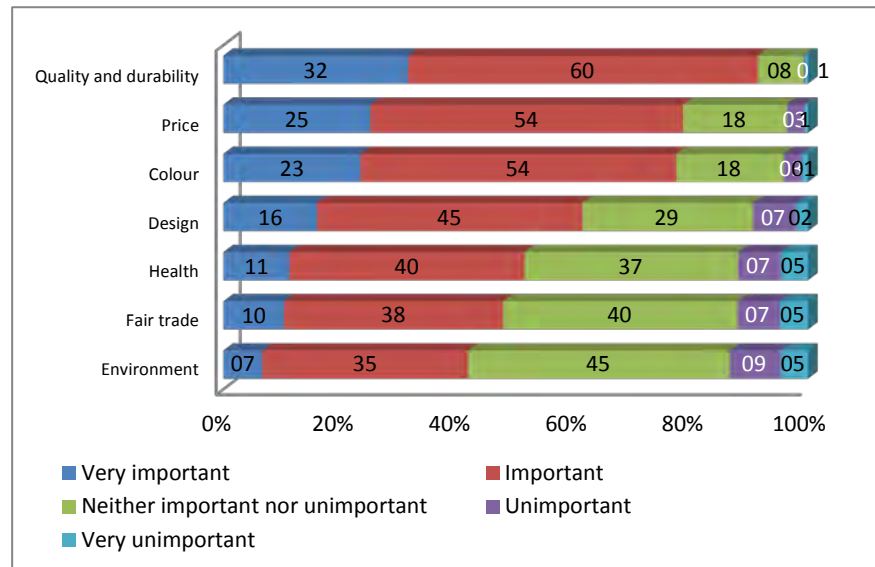
Figure 2: Consideration of clothes' environmental consequences during the different use stages in percentage (Survey 2010. N=285)



2.3.2 Acquisition

About 20% state that they try to consider the environment when they buy clothes and textiles (Austgulen, 2013). However, as illustrated in figure 3, the environment still comes out as the least important consideration when compared with other considerations (color, price, design, quality and durability, health and fair trade).

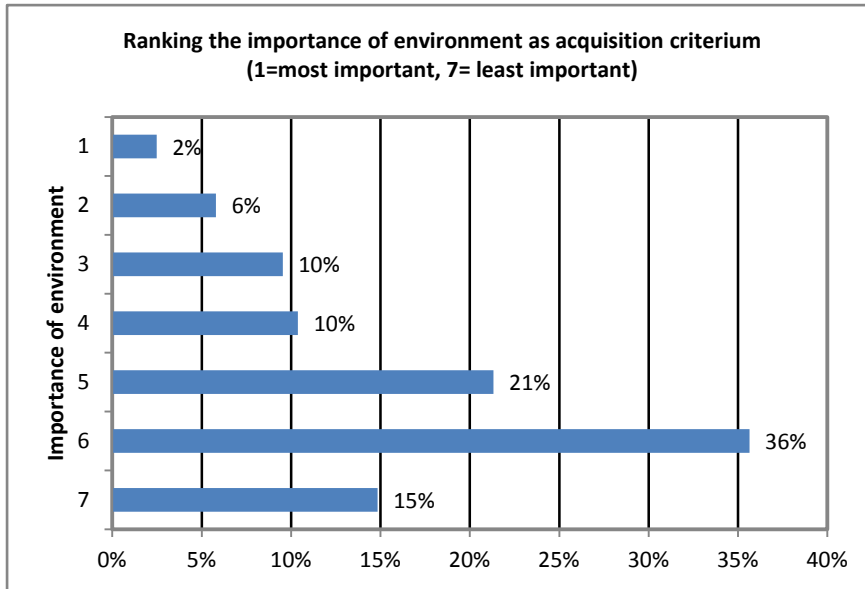
Figure 3: Considerations when buying textiles. Per cent proportions. Respondents answering “don’t know” have been excluded



Survey from 2012, N ranging from 968 to 995.

The same finding is also evident when the respondents are asked to rank the considerations from one (most important) to seven (least important). Figure 4 shows that environment is seldom ranked as the most important consideration. It is actually typically ranked as the second least or the least important consideration.

Figure 4: "Think about the last time you were buying clothes for yourself or someone in your household. How concerned were you about the following aspects?" This figures show the ranking of "environment" in per cent. Respondents answering "don't know" have been excluded



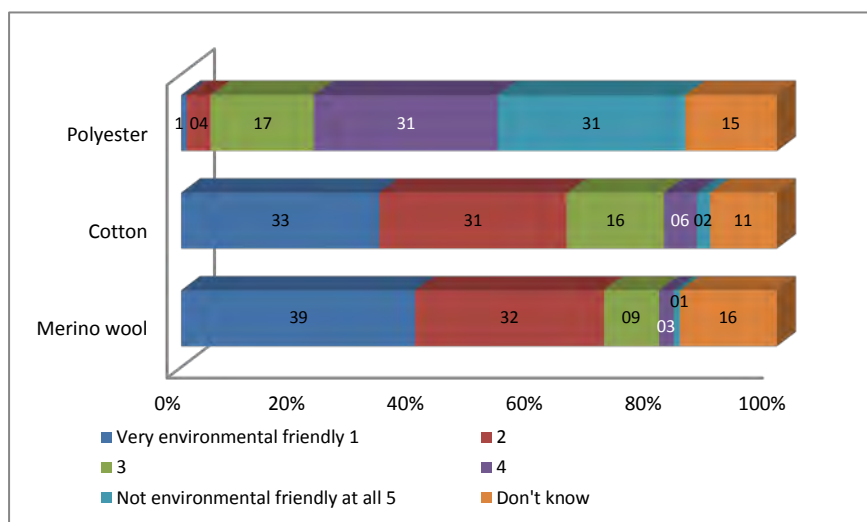
Survey from 2012, N = 853.

As illustrated in figure 3, a majority of the respondents emphasize quality and durability. In these areas there is a substantial potential to reduce the environmental impact. But also here the consumers lack information and tools. There is no quality or durability labeling of apparel and the consumers' ability to recognize quality in the purchase situation is limited. Studies on sustainable clothing consumption concentrate on consumers' acquisition behavior related to selection of products that are somehow more sustainable than other alternatives. In general, such studies have identified a "knowledge-to-action" gap (Markkula and Moisander, 2012). It has been shown that neither environmental attitudes nor knowledge directly translate to sustainable clothing acquisition behavior (Brosdahl and Carpenter, 2010; Butler and Francis, 1997; Gam, 2011; Kim and Damhorst, 1998). The discrepancies between attitudes and behavior are mainly explained by the fact that shopping for clothes can be a complicated process where several criteria must be taken into account simultaneously, including price, fit, style, color, cultural, and social aspects, in addition to sustainability. It may be difficult to find products that satisfy all the desires at the same time (Miller, 2001; Niinimäki, 2009). From an environmental point of view, it is also

important that consumers select clothing that satisfies their diverse needs, giving garments a long life-time.

The fiber content is considered to be an important indicator of sustainability, but consumers have a low level of knowledge on the environmental impacts of different fibers (Laitala and Klepp, 2013b). This finding is also confirmed through the consumer survey from 2012. Figure 5, show that both cotton and merino wool are considered as much more environmental friendly than polyester.

Figure 5: How environmentally friendly do you think the different fibers are?
Total N = 1,004



Even though there is not a consensus on the environmental impact of different fibers, there is a consensus that cotton represents the biggest environmental impact. So when consumers try to take environmental considerations into account in the clothing acquisition phase, the result may be higher than they actually think.

Except for care instructions and fiber content, there are no mandatory requirements to the labeling of clothing and textile products in the Nordic countries. Nevertheless, voluntary labeling schemes giving environmental and/or ethical input on the products exist, such as the Nordic Swan, the EU Flower and the Fair Trade label. The amount of textile products that are covered by these schemes are, however, limited, and few textiles with these kinds of labels are available on the Norwegian market (Austgulen, 2013; Stø and Laitala, 2011). Some clothing made of organic cotton, and clothing with health label Oeko-tex 100 can be found (Oeko-tex, 2014). Some eco-labelled clothes for children is also available.

In general global eco-labels for textiles are not very well known among the Norwegian consumers, and very few know where to shop if they want to buy eco-labelled clothing and textiles (Austgulen, 2013).

2.3.3 Disposal phase

The majority of studies on end-of-life solutions which consumers choose for their clothing give a positive picture, as they prefer to deliver the clothing to reuse rather than binning in most cases (Bianchi and Birtwistle, 2012; Charbonneau, 2008; Ha-Brookshire and Hodges, 2009; Klepp, 2001). The preferred reuse channels are donating and giving to friends/family are more frequent than selling garments. A lot of garments are still binned if the user feels that they are of no use to others, either because of wear and tear, stains, other damages, or because of change in fashion trends (Ekström *et al.*, 2012; Ungerth and Carlsson, 2011). Studies on clothing disposal reasons have shown that wear and tear, size and fit issues, taste related issues, as well as fashion are the main drivers for clothing disposal, although the importance of these reasons varies between the different studies (Domina and Koch, 1999; Klepp, 2001; Laitala and Boks, 2012; Ungerth and Carlsson, 2011).

Two studies on disposed clothing show that about every fifth garment is unused or only used once or twice (Klepp, 2001; Laitala and Klepp, 2013a). It is also evident that the way clothes are acquired has an impact on whether they are used or not. Most of the unused clothes were gifts or inherited clothing items from family and friends. This means that the receiver has very little control over what s/he is given. In addition comes clothing that was not tried on before purchase, and/or that was bought on sale.

2.4 Consumer perspectives in five European countries

The third report “Consumer perspectives on eco-labeling of textiles: Results from five European countries” is written by Marthe Hårvik Austgulen from SIFO and focuses on consumer perspectives on eco-labeling of textiles in several European countries,⁷ including Norway and

⁷ Available at http://www.sifo.no/files/file78708_oppdragsrapport_2-2013_web.pdf

Sweden. It also offers information on different labeling schemes and consumers' opinions relating to these, in addition to consumers' opinions on the general environmental approach within the textile sector.

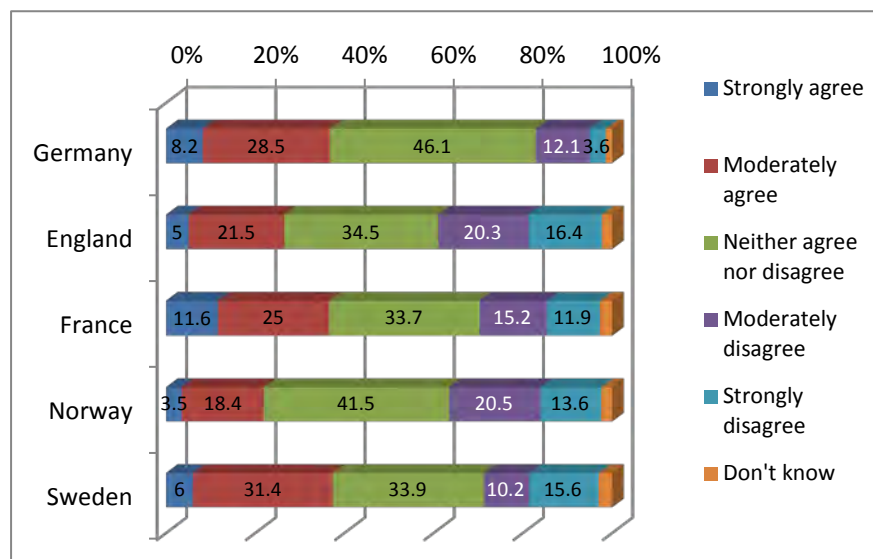
The report is based on survey data from five European countries: France (FR), England (EN), Norway (NO), Sweden (SE) and Germany (GE). The data was collected through TNS' web panels (CAWI) in the period from 14th to 21st of March 2012.

Below are excerpts from the report where general views on environment and environmental practices are discussed. This is followed by the conclusion of the report.

2.4.1 Consumer preferences and intentions

In conclusion, a fair share of the respondents in all countries agrees with the statement "I try to think of the environment when I buy clothes and textiles": 23% of the Norwegian respondents to 37% of the Swedish respondents answer that they either moderately or strongly disagree with the statement. Based on Figure 6 we can see that the Norwegian respondents are the ones that report to be least concerned about the environment when buying textiles. The respondents from Germany, France and Sweden are the most concerned. More women than men, and more old people than young people state that they try consider the environment.

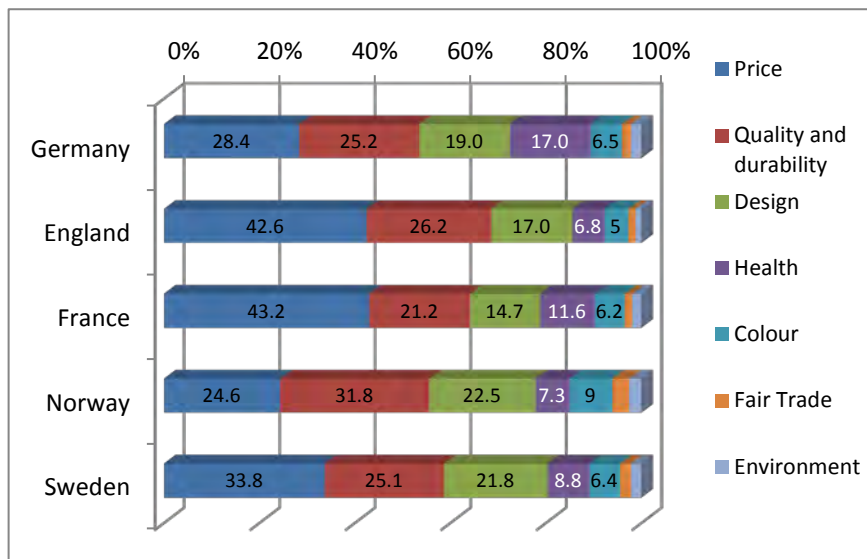
Figure 6: "I try to think of the environment when I buy clothes and textiles". Percent proportions. N = 5,169



2.4.2 Reported practices

Consumption of textiles is a part of people’s daily life and routines. Apparel satisfies a wide variety of the consumers’ needs as apparel protects, defines a person’s role in social groups or is a part of a person’s expression of life-style. Figure 7 illustrates the respondents ranking of the different considerations he/she engages in when buying textiles. The figure shows the percentage of chosen consideration as first priority. The trend is similar in all countries; price, quality and durability and design are the most important considerations. Environment is together with fair trade the least important consideration in all markets. These results are in line with the previously presented results regarding respondents’ considerations when buying clothes and textiles.

Figure 7: Think about the last time you were buying clothes for yourself or someone in your household. How concerned are you about the following aspects? Numbers shown are the percentage who answered that the respective interest is their first priority



Despite the fact that the environmental impact is the lowest priority for the respondent when buying clothes, a substantial amount of the respondents report that they have considered the environment when buying clothes and textiles for small children (Figure 8) and when buying clothes and textiles for themselves (Figure 9). Based on the response pattern respondents from Germany and France seem to be most proactive for environmental considerations while respondents from England are the least active.

Figure 8: “Allowed for environmental considerations when buying clothes and textiles for small children?” Per cent proportions. N = 5,173

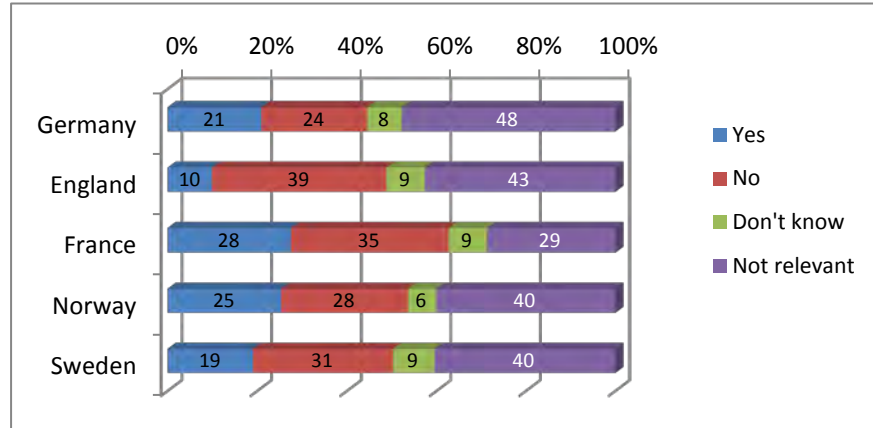
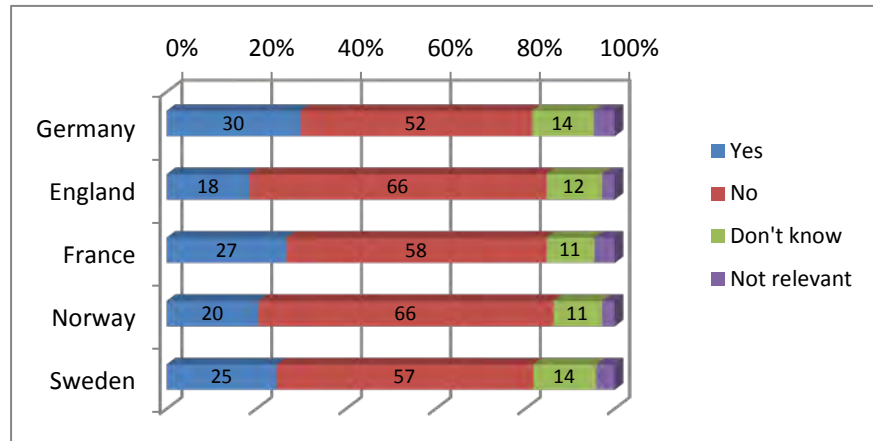


Figure 9: “Allowed for environmental considerations when buying clothes and textiles for yourself?” Per cent proportions. N = 5,165



To buy eco-labelled products is, according to Micheletti (2003), a “buy-cott”-strategy which is part of a positive consumer choice institution (a selective preference of goods). Eco-labeling schemes intend to help consumers to practice political consumerism. Overall, approximately 20% of the respondent in all countries report that they have used this strategy because they have bought clothes or textiles with special labels to support the sales of these products, such as fair trade and eco-labels, during the last twelve months (Figure 10). Considering that the amount of eco-labelled garments that are available for purchase are few and far between, and that this varies between the countries studied, these results seem to indicate an over-reporting among the respondents. It might as

well be possible that they are thinking of other environmental strategies when they purchased a specific textile.

An even higher share of the respondents, ranging from 19% in England and Norway to 33% in France, state that they have used the boycott strategy and thus have avoided buying certain clothing brands and shopping in certain stores because of ethical concerns during the last 12 months (Figure 11). The respondents in France and England are slightly more prone to use the boycott strategy than respondents in Norway and Sweden. The respondents from France are however more prone to use the boycott strategy than respondents from Norway and England.

Figure 10: “Bought clothes or textiles with special labels to support the sale of these products, such as fair trade or eco-labels?”. Per cent proportions. N = 5,167

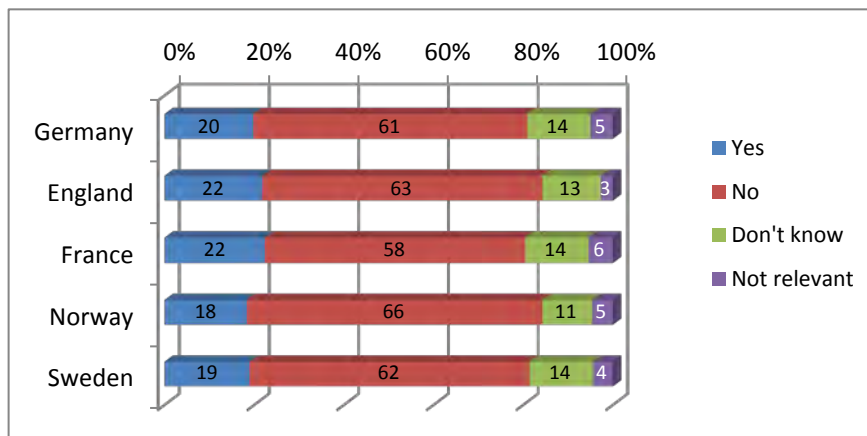
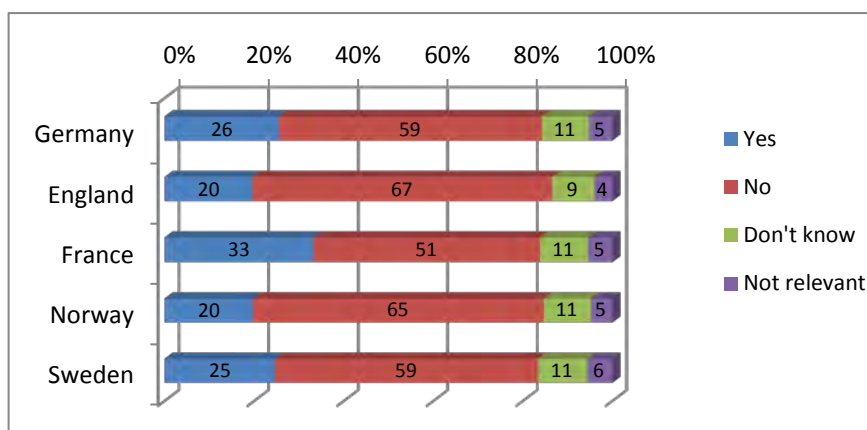


Figure 11: “Avoided buying certain clothing brands or shopping in certain stores because of ethical concerns?”. Per cent proportions. N = 5,157



2.4.3 Best strategies

The main purpose of the project “A Study of Environmental Standards and their Trade Impacts: the case of India” is to generate improved understanding of the potential for environmental and social labels as a communicative tool among European consumers and Indian producers.

Eco-labeling is one of many possible solutions to the challenges in the textile industry, and we asked the respondents which strategies they considered as the best for the environment of the following: Buying fewer clothes, extending the length of use by repair, washing clothes less often and buying eco-labelled apparel (Figure 12). Not surprisingly, many respondents in all countries responded that buying fewer clothes is the best strategy. However, buying eco-labelled clothes is regarded as the second best alternative in Germany, France and Sweden. Only 15% of the Norwegian respondents considered the strategy of buying eco-labelled clothes as the best strategy for the environment. What the respondents considers being the best strategy for the environment might not be their preferred strategy or the strategy which is the easiest for them to implement. We therefore asked the same respondents which of the strategies that would be easiest for them to implement in their current situation (Figure 13). The results indicate that more than 50% of the respondents consider buying fewer clothes as the easiest solution for them to implement. Very few of the respondents consider buying eco-labelled clothing as the best alternative.

Figure 12: “Which of the following strategies do you think are the best for the environment, and which are the worst?”. Numbers shown are the percentage who answered that the respective strategy is best. Per cent proportions

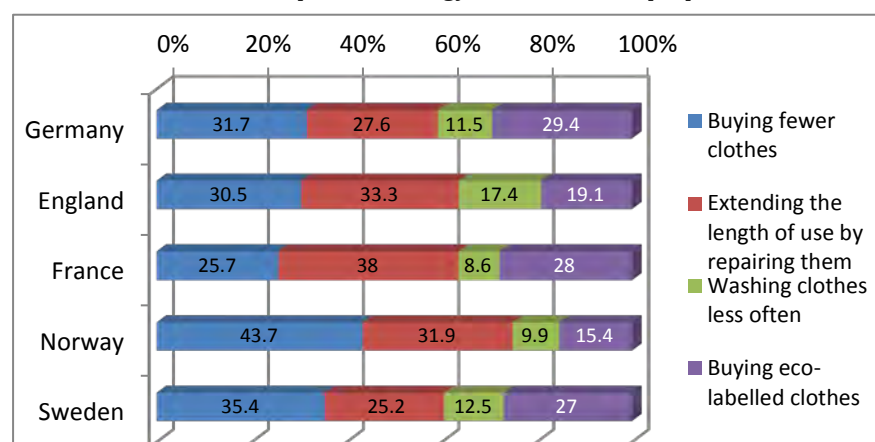
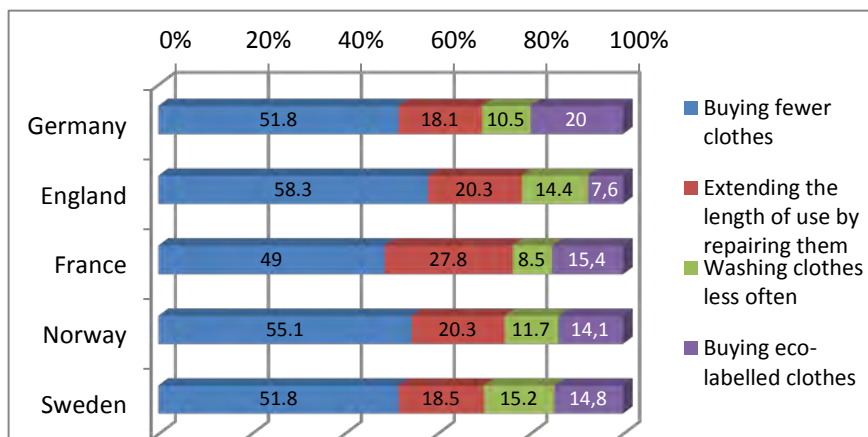


Figure 13: "In your current situation, which of the following strategies would it be easiest for you to implement?". Numbers shown are the percentage who answered that the respective strategy is the easiest to implement. Per cent proportions



2.4.4 Main findings

- The success of eco-labels for textiles is challenged by the limited awareness among the consumers about the relevance of labels for textiles.
- The awareness of global labels is much lower than the awareness of national and smaller regional labels.
- Women in all countries also score higher on the political consumer index than men.
- An important condition for the success of eco-labels is that the consumers feel that they are responsible actors, and that their actions matter.
- There are significant variations between the different countries studied. Overall, respondents in Germany and Sweden score highest on the political consumer index while respondents from Norway and England score lowest.

2.5 Other stakeholders

The fourth report “Barriers to the success of eco-labels for textiles: A report from stakeholder interviews in Norway” is written by Marthe H. Austgulen and Eivind Stø from SIFO.⁸ Even though the report concentrates on eco-labeling, it also gives information of the stakeholders’ attitudes towards various potential environmental measures, and sharing of responsibility within the value chain.

The report is based on 17 interviews with 23 informants. Six represented businesses/ organizations, three represented design institutions, three represented labeling organizations, seven represented political authorities/ministries and three represented NGOs/environmental organizations.

The report seeks to answer the following questions:

- If anything, what has been done by the various stakeholders to increase the sustainability of the textile supply chain?
- Who are perceived as the responsible actors?
- What is perceived as good solutions to the problem?

2.5.1 Conclusion: Sustainability in the textile value chain

- There is an increasing understanding of the environmental impact of the textile production among all stakeholders.
- Compared with other consumptions areas, the environmental understanding of the negative impact of textile production has been limited.
- In general, the design community prefers holistic sustainable fashion; the eco-labeling institutions advocate the importance of independent third party certification and that the industry and retailers are skeptical towards regulations from political authorities.
- Retailers seem to be preparing themselves for changes in the near future. This change may come from the top: regional and national governments, or through pressure from the bottom: consumers, citizens and NGOs.

⁸ Norway. Oslo: SIFO. Available at http://www.sifo.no/files/file78707_oppdragsrapport_1-2013_web.pdf

- The perceptions of the potential role of consumers vary substantially between stakeholder groups. Consumers may have a part to play, but in the current situation consumers have few choices and their potential as market actors is limited.
- During the last years we have witnessed an increased activity from retailers and major brands. There may be various rationales behind this activity. One is to prevent regulations imposed by national and regional authorities. Another rationale is the competition between the large market actors.
- There is a common understanding that governments have a part to play in this sector, as they have had in other strategic sectors. However, it is difficult to regulate economic activities along a complex global value chain and there might be a common understanding to settle for voluntary agreements.
- The various actors don't agree about potential solutions, and their positions reflect their own interest. There are strong arguments for international and global standards. However, it takes time to develop such standards and also to promote it as an internationally recognized label or standard.
- National and regional labels are trusted and well-known by consumers, but are opposed by stakeholders who prefer global labels.
- There are reasons to believe that the initiatives taken by the large global textile retailers will improve the environmental sustainability of the textile sector. Whether these initiatives from the retailers will be sufficient to meet the environmental challenges of the textile sector alone is another question.
- Previous studies have shown that the retailers are also facing a lack of trust in labels developed by the industry and retailers without a third-party certifications scheme. However, this distrust is stronger in Norway than in other countries (Stø and Strandbakken, 2005).
- Voluntary tools emphasized within the new governance perspective do not function when there is an uneven distribution of resources among the stakeholders in the process (Olsen 2002). This uneven distribution may strengthen the demand for traditional regulations of crucial parts of the textile value chain in the future.

2.6 Quality requirements in eco-labels

When *eco-labels for textiles* are discussed, it is often mentioned that they include quality requirements and sometimes they are also referred to say something about the expected lifespan. This section summarizes such criteria from three eco-labels, Nordic Eco-labeling's (2012) Swan label, European Commission's (2014c) Flower Eco-label, and Global Organic Textile Standard's label GOTS (2014). All of them include criterion for color fastness against rubbing, light and washing, in addition to requirements for dimensional changes. In addition, EU and GOTS include criteria for color fastness to perspiration, Nordic and EU criteria for pilling, and GOTS for color fastness to saliva.

EU eco-label includes additional specific requirements for cleaning products and products that contain water, oil and stain repellency finishes, flame retardancy or easy care treatments. Cleaning products must have specific absorbency after multiple washing cycles (5–200 cycles depending on product type). Fabrics with specific treatments must retain most of their capability after 20 domestic wash and tumble dry cycles at 40 °C, or after 10 industrial washing and drying cycles at a minimum of 75 °C (standard test methods: water repellents ISO 4920, oil repellents ISO 14419, and stain repellents ISO 22958). These requirements can be seen to be relevant for expected lifespan, but are only valid for very specific products.

None of the above mentioned labels include any strength criteria such as tensile or tear strength, abrasion resistance, or requirements for seams. The requirements that are given are in general not very high either. For example, color fastness to light is evaluated on a scale from 1 to 8, and the requirements vary from 3/4 to 5. Grade 5 is general minimum requirement given in Norwegian furniture labelling,⁹ and values lower than that cannot be considered especially high.

Maximum allowed dimensional changes vary greatly between the standards and fabric types or fiber contents. GOTS does not set high requirement as it allows 8% change of knitted products after one wash. Nordic and EU eco-label requirements are slightly higher, as they require three laundering cycles and allow in general smaller changes in dimensions.

⁹ <http://mobelfakta.no/>

Nordic and EU eco-labels do set some criteria for pilling resistance, but only to some textiles. Nordic only states it to furniture fabrics, while the EU label requirement is valid for non-woven fabrics and knitted garments, accessories and blankets made of wool, wool blends and polyester (including fleece), as well as woven cotton fabrics used for garments, and polyamide tights and leggings.

Based on this, it can be concluded that although all of the abovementioned eco-labels do include some quality criteria, they cannot be seen to reflect directly to technically expected lifespan of garments, as the existing requirements are rather low, and many relevant parameters are not tested at all. The specific requirements of the labels are given in table form in Appendix 2. However, if the labels are to be developed further, the quality criteria section could be extended to include more relevant criteria for securing longer technical lifespans of the labelled textiles.

3. Methodology development

3.1 Framework of focus areas

3.1.1 *Sustainable Textiles Landscape*

This activity concerns further developing the sustainable textile landscape. The sustainable textiles landscape will have a number of functions:

- Provide a terrain against which to map initiatives under WP3.
- Provide the basis for identifying “hot spots” in Nordic countries where there is a significant coverage by existing initiatives and “cold spots” where there are a distinct lack of initiatives.
- Analysis of cold spots and hot spots can provide a basis of focus areas for inclusion in an eventual Nordic Roadmap.

The starting point for the landscape was the list of focus areas provided in the tender document. This list was reasonably comprehensive but lacked a structure. Providing a structure within which to place these focus areas would better enable initiatives to be mapped. It would also open up for identification of gaps within the landscape where focus areas had been missed.

A primary structure for the landscape was provided by the 4Rs. These can be thought of as four separate (though connected) *Regions* within the landscape. A fifth component of the landscape “Evaluation” was also felt necessary to encompass some of the focus areas named in the tender document which concerned data gathering and analysis.

A number of *Focus areas* were then identified within each of these regions. These include, as far as possible, the elements in the list within the tender but also additional focus areas which emerge from the consortiums knowledge of the area and the descriptions of the 4Rs provided in the Inspiration document. A description of the content of each of the Focus areas has also been included. The resulting sustainable textiles landscape is given table 1.

Environmental policy tools and regulation is considered overarching and can e.g. be used to promote or control one or more of the focus areas.

The list can serve as a basis for the selection of focus areas for inclusion in a Nordic Roadmap.

Table 1: Framework for sustainable textiles landscape

Primary region	Focus area	Content
Replace	Sustainable business models	Lower volume – higher quality Many user models (resell of own brand, hiring, leasing, borrowing etc.) Repair and fitting
	Sustainable product design	W2W – Wonderful to Wear Design for reuse and longer life: Higher quality/durability of textile products Education of designers/purchasers
	Consumer/citizen behavior	Awareness of environmental consequences (education, campaigns etc.) “Nudging” and choice editing Promote better understanding of value and longevity Private C2C reuse exchanges Wardrobe stewardship
Reduce	Reuse and recycling	Take-back schemes Improved exchange policies Improving public waste management and private collection systems Improved recycling technologies (closed loop) Design for recycling: single fibers, ease of disassembly
	Low impact production chains	Improved production technologies/processes (low input/emissions/chemicals) Organic production Regulation of chemicals (Common Nordic laws, systems and best practices) Labeling of technical properties, care and use, durability, guarantees etc.
	Producer corporate social responsibility	Value chain improvements of both environmental and social character
	Sustainable private and public procurement	Criteria, links to labels, chemical restrictions, criteria on recycled content, working conditions etc.
	Sustainable private and public use	Reduction in laundry frequency Laundering, drying and care with lower environmental impact
Redirect	Encourage and facilitate local value-chains	Encouraging local materials like wool, linen, viscose, hemp, new materials Activate Nordic textile traditions and artisan production
Rethink	Better textiles	Improving on function, fit and/or flexibility Inclusive design (i.e. products for all, older, handicapped, overweight, etc.)
	Ethical marketing	Avoiding thin models, digital photo-manipulation etc.
Evaluate	Statistics of textile flows and use	Textiles put on market, used textiles collected recycled and reused Textile trade stats Information on use of clothing and textiles, in-use period, longevity, laundering-frequency and amounts
	Lifecycle analyses	Of textile value chains and various textile materials
	Nordic textile companies’ environmental reporting	CSR commitment and target reporting

3.2 Initiative Matrix Template

In the following, we will show how we have developed a methodology for the evaluation for the *Initiatives*. The focus of the methodology description have been to identifying information necessary for the evaluation which then needs to be collected for each initiative during the mapping work.

3.2.1 Evaluation overview

The following evaluations were identified in the offer:

- A. *Analyse the strengths and weaknesses of the various textile initiatives and describe how they can contribute to a Nordic Roadmap:* as the initiatives can vary in both how they deal with issues and function, we will assess their potential contribution rather than compare them.
- B. *Identify unexplored areas, necessary additions and further research:* Here the task will be to expand further on the focus areas. The focus areas chosen will already have been prioritised in relation to their potential and social benefits.
- C. *Identify Nordic positions of strength in the fashion and textile sector:* The Nordic region holds some common values and potential strengths that can create a better over-all textile and apparel sector. However, the Nordic countries are also different when it comes to how they approach sustainable fashion and consumption. This will be described, with strengths and weaknesses, in relation to today's situation and tomorrow's potential.
- D. *Identify potential synergies between waste, chemicals and sustainability policy:* The evaluation will consider the potential for synergies between the policy areas, and then identify the extent to which these synergies are currently being realised and which aren't.
- E. *Plan for a follow-through to a Nordic Roadmap.*

Of these five, only Evaluation A and to a lesser extent C are directly concerned with the initiative mapping exercise in. Information that allows for Evaluations A and C will need to be gathered for each initiative as described in the sections below. Evaluation B is concerned with unexplored areas (so-called cold spots) and further research. This will be presented together with any potential synergies between policy areas (D) as elements of the discussion for a Nordic Roadmap (E) in WP5. B, C

and E will be based on the knowledge that is attained during the work desk-top research based on internet searches and other available information, as well as our collective knowledge through working with these issues over time.

3.2.2 Methodology for Evaluation A

The mapping will focus on projects and initiatives that have extended into the 2000s. Only where particularly relevant, will older initiatives be included. By *Initiative* we mean activities or platforms for improving the environmental impact of the textile and apparel sector, this could be:

1. Concrete activities, e.g. the film on waste prevention commissioned by NCM/NAG.
2. Knowledge-generating activities, e.g. the MISTRA Future Fashion project in Sweden.
3. Cooperative efforts and platforms for discussions, e.g. the Textile panel in Norway.
4. Policy making actions, e.g. EPR rules/regulations.

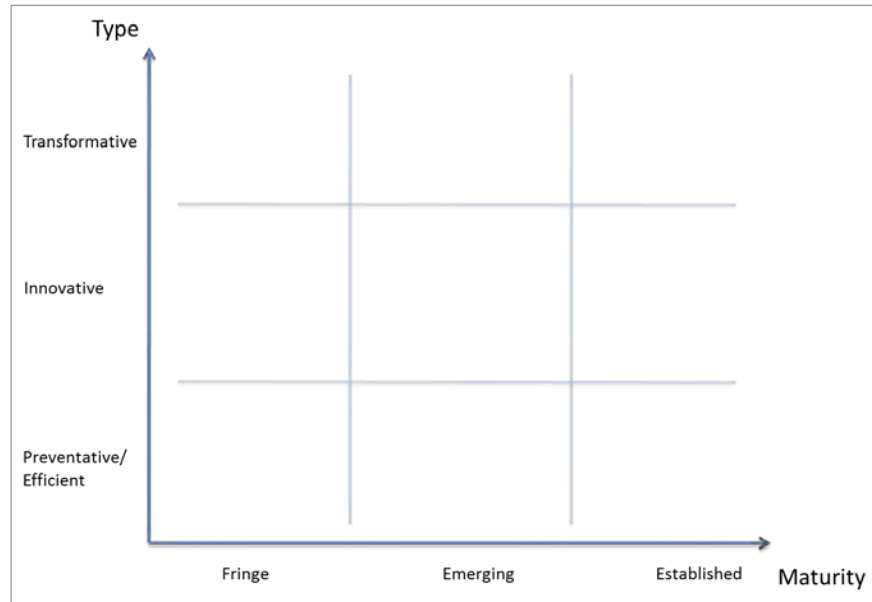
A number of attributes can be considered for characterizing strengths and weaknesses of the various initiatives and the degree to which they can contribute to a Nordic Roadmap. Due to the nature of this project (i.e. having to capture a very wide range of initiatives both on the Nordic and international textile scene) the attributes will have to be able to cover many different types of activities and at the same time be able to provide a relatively precise and useful description for the further work on developing a Nordic Roadmap. More specifically, the measured attributes for this assessment need to be *sharp*, in the sense that they are able to reveal something meaningful and relevant about the initiative/activity, and *simple to evaluate*, in order to keep within the overall frames in terms of time and finances set for this project.

By considering what will be necessary for the evaluation in WP4, the following two attributes have been selected for characterizing the initiatives for the purposes of Evaluation A:

- Maturity.
- Level of innovation.

The two attributes can be assessed by placing them in a diagram as depicted below in figure 14.

Figure 14: Placement of maturity and level of innovation



Maturity will assess the degree to which the initiative/activity is established within societal, government and business activities/processes:

- *Fringe (low)* – initiatives/activities run by activists or enthusiasts, most likely non-for profit, pilot projects by minor players without support from major players or governments.
- *Emerging (medium)* – initiatives/activities that are either managed by medium-large entities with some form of stable funding or initiatives/activities that rapidly are gaining momentum.
- *Established (high)* – initiatives/activities that are most likely widespread, managed by large companies or groups of companies, multi-stakeholder initiatives with leverage, government run initiatives etc.

Level of innovation of an initiative will assess the degree to which it is a game-changer or not:

- *Incremental (low)* – Initiatives that works methodically with key sustainability challenges to make small incremental improvements somewhere in the existing textile value chain, etc.
- *Innovative (medium)* – Leading edge initiatives using sustainability as a driver for business innovation, growth and market differentiation.
- *Transformative (high)* – activities aiming to cause paradigm shifts in the way we approach fashion and clothing. Sustainability as the driving force for forefront thinking/actions. Societal leadership activities striving to develop new markets for sustainable products and sustainable business models.

It will be more difficult for broad initiative such as “Mistra Future Fashion” which contain a myriad of different activities, some of which may be incremental and some of which may aim at transformative change. Here, it’s suggested that the headline objectives of the initiative are examined to determine the level of ambition in terms of innovation.

Under WP4 the initiatives will be plotted on the diagram shown above. Transformative initiatives should be preferred in the final recommendations for a Nordic Roadmap under WP5. The picture is less clear for Maturity. Already mature initiatives may not need to be nurtured further via inclusion in the Roadmap. Focus in the Roadmap could rather be on the more fringe initiatives that have potential for expansion but only if they enjoy the support that could be provided by the Roadmap. On the other hand the Roadmap should, perhaps, also include some established initiative as central elements, to ensure that these continue and are recognized and rewarded for their importance. These issues will be discussed in more detail under chapter 7.

3.2.3 Methodology for Evaluation C

The Nordic region holds some common values and potential strengths that can create a better overall textile and apparel sector. However, the Nordic countries are also different when it comes to how they approach sustainable fashion and consumption. This will be described, with strengths and weaknesses, in relation to today’s situation and tomorrow’s potential.

These differences can to a certain extent be determined via plotting the various initiatives colored according to country, against the frame-

work of focus areas developed under WP 2 Activity 1. The initiatives developed in a country will in part be determined by the level of innovation of government and business but also by what they perceive will be accepted by the country's population. Both of these attributes are determining factors in values and strengths.

However, Evaluation C should also make use of existing literature and surveys of consumer and business attitudes to textiles, clothing and sustainability in the various countries.

The aim of Evaluation C will be to identify the common focus areas rich in initiatives from right across the Nordic region. These focus areas can then be recommended as central elements of the Nordic Roadmap – areas where there is consensus. Other spots will also be discussion points:

1. Focus areas which have a lot of focus in one country but not in others. Possible reasons for these differences will be identified under Evaluation C. Is there potential for extending these initiatives throughout the region via the Roadmap?
2. Focus areas which have yet to be touched by any initiative. Do these have sufficient potential benefits such that they should be included as areas for “seeding”, “catalysation” in the Roadmap?

The mapping exercise carried should enable the plotting of initiatives against the Landscape of Focus Areas). The Matrix Template used for mapping therefore needs to include a field where the focus area of the initiative is determined. Again, broad initiatives like the Mistra Future Fashion will cover a range of focus areas.

3.2.4 The Initiative Matrix Template

A number of initiative characteristics have been identified above that should be described/determined for each initiative during the mapping activities in WP3. To organize the necessary information a Matrix Template will be described which should then be filled out, as far as possible for each initiative.

In addition to the attributes necessary for the evaluations, some basic info should as be presented which provides a reasonable summary of the initiative:

- Name of initiative.
- Initiating organization.
- Weblink.

- Geographical cover.
- Short description.
- Product type addressed (i.e. all textiles, apparel, household textiles, professional workwear or other textile groups?).
- Position in value chain.

The diagram given in Figure 15 can be used for describing the position in the value chain adapted from Guidelines II:

Figure 15: Textile value chain



Table 2: Matrix Template for each initiative

BASIC INFO			
Name of initiative			
Initiating organization and year			
Weblink			
Short description	5–12 lines		
Geographical coverage	i.e. global, individual Nordic country (which?), or only single city/ municipality (which?)		
Product type addressed	i.e. all textiles, apparel, home textiles, professional workwear/uniforms, formal wear, children’s clothes etc.		
Position in value chain	See Figure 15		
Time-frame			
EVALUATION ELEMENTS			
Maturity (place cross as appropriate)	Fringe (low)	Emerging (medium)	Established (high)
Level of innovation (place cross as appropriate)	Incremental (low)	Innovative (medium)	Transformative (high)
Region(s)	Which of the 4 Rs or E – Replace, Reduce, Redirect, Rethink, Evaluate?		
Focus Area(s)	Which of the focus areas identified within each region		

4. Mapping of initiatives

In this chapter we will present the many initiatives. We'll first present the international, then the Nordic and finally the national. The aim of the description of the international ones was to obtain inspiration and experiences for the NRM. This is thus far from a full independent review and initiatives are neither presented nor evaluated in the same manner as the Nordic ones. As stated in Chapter 4, we have used a system for assessment of individual initiatives (Nordic and national). These reviews will be presented and discussed at an aggregated level in Chapter 6, but are not included in the presentation of the individual initiatives here.

To create such lists presumes a wide range of limitations and compromises. This applies both to what should be included, whether we are talking about a national, international or Nordic initiative, and how they should be evaluated. Before we get to the descriptions of the initiatives, we will therefore return to definitions and limitations of the work we have done.

4.1 Limitations

By Initiative we mean activities or platforms for improving the environmental impact of the textile and apparel sector, this could be:

- Concrete activities, e.g. the film on waste prevention commissioned by NCM/NAG.
- Knowledge-generating activities, e.g. the MISTRA Future Fashion project in Sweden.
- Cooperative efforts and platforms for discussions, e.g. the Textile panel in Norway.
- Policy making actions, e.g. EPR rules/regulations.

Some initiatives may include more than one of the above-mentioned, and some initiatives may be cooperating on several activities, with or without a formal structure. An example of this is the Nordic NICE pro-

ject, but also how SFA and nicefashion.org are working together on an eLearning tool.

We will not include specific company-related initiatives unless they represent a cooperative effort among several stake-holders.

The analysis of initiatives in the Nordic countries will be made to the extent necessary to reach the goal of the work, within the available budget. A comprehensive quantitative analysis and comparison of different initiatives will not be possible. The survey and analysis will primarily be about actors, themes and ambition, more than about quality and precision.

Work with the survey is done by the partners in the different countries. This has been effective, because they who know them best have done the mapping. A weakness, however, is the somewhat different understanding of both definitions and scales by different people. Despite persistent attempts at uniformity, the overview will still show some signs of marked differences. We see that the Danes stand out as somewhat more generous. They are more positive in the descriptions of their own initiatives both in text and in the assessments. This generosity is also reflected in the range of initiatives. This means that there are types of initiatives in the Danish list not included in the Finnish, without this meaning that such initiatives do not exist in Finland. Footnotes will mark this in more detail.

4.2 International

In selecting and describing the international initiatives we use the collective knowledge of the field by the members of the consortium. The description of the initiatives is based on the websites and the experience we have had directly with the initiatives. The purpose of the survey of the international initiatives is to see what is going on internationally, and what is important that a future RM stays up to date on. This we will discuss further in our “plan for a plan” in chapter 7. We have not evaluated whether they are innovative or degree of maturity; and we have not gone into detail on all international initiatives, as this was not appropriate for the mapping and because detailed knowledge of all international initiatives were not available to the consortium.

We have also not placed them in the Matrix, as this was not part of the deliverable. In the Table 3 below we have only placed the most established initiatives – that are receiving the most attention internationally. Many smaller and fringe initiatives placed here would give a very different pic-

ture; but would also be a more complicated exercise. The table therefore reflects more accurately where the main international activity is headed. The EU Eco-label has not been included below, mainly because it covers so many non-textile sectors, and therefore is not sector-specific. It is, however, mentioned among the international, alongside GOTS (which is fiber-specific) and SIFO has analyzed the two alongside the Nordic Swan for quality criteria (see section 3.6 and Appendix 2).

Table 3: Overview of some of the most important international initiatives

Replace	Reduce	Redirect	Rethink
SCAP	SCAP HIGG INDEX ZDHC Better Mill Initiative ECO TLC		
(NCC)*	NCC Launch Sustainable Consortium		

* Indirect influence.

4.2.1 Sustainable Clothing Action Plan (SCAP)

SCAP’s ambition is to improve the sustainability of clothing across its lifecycle. By bringing together industry, government and the civil society organizations they aim to reduce resource use and secure recognition for corporate performance by developing sector-wide targets.

SCAP is overseen by a Steering Group, consisting of major retailers, brands, recyclers, sector bodies, NGOs and charities, and four working groups: Design, Re-use & Recycling, Influencing consumer behaviors and Metrics.

Leading clothing sector companies have pledged to measure and reduce their environmental footprints and signed up to the SCAP 2020 Commitment.

Lead organization: *WRAP*.

WRAP is an organization helping businesses and individuals reduce waste, develop sustainable products and use resources in an efficient way.

SCAP was initiated by UK’s DEFRA (Department of Environment Food and Rural Affairs

How

- Commissioning Lifecycle assessment.
- Multi-stakeholder perspective (retailers, brands, recyclers, sector bodies, NGO's, charities).
- Commitments from companies (SCAP 2020).¹⁰
- 4 working groups with different stakeholder groups representatives:
 1. Design:
 - Identifying priority actions to reduce the impacts of clothing. The group will deliver guidance and model wording to embed good practice in corporate requirements for design and buyer specification.
 2. Re-use and recycling:
 - Developing systems and initiatives (including consumer communications) for improving collection of clothing.
 - Separation of clothing for re-use and recycling, where re-use of clothing is preferred to recycling.
 - Market development for re-use and recycling of clothing and lower material grades.
 3. Influencing consumer behavior (In-use working group):
 - Seek to influence consumers to take action to reduce the environmental impacts of clothing over its life cycle. The group now aims to.
 - Share with industry insight into consumer behaviors.
 - Develop a suite of industry resources to influence consumer behaviors.
 - Communicate (through SCAP members) with consumers to influence behaviors.
 4. Metrics:
 - The group aims to agree practical ways to measure and report reductions in Carbon, Water and Waste impacts of UK clothing.

¹⁰ SCAP 2020 targets: Starting from a baseline year of 2012, SCAP Signatories have committed to: 15% reduction in carbon footprint; 15% reduction in water footprint; 15% reduction in waste to landfill; and 3.5% reduction in waste arising over the whole product life-cycle.

As this work is on-going and outside the realm of being publically available; we cannot comment on how far along SCAP has come. We are, however, in dialogue with them; and a follow-up of this contact for a Nordic RM would seem a natural fit.

4.2.2 Higgs Index

The Higg suite of tools are a global industry wide effort to lead the industry toward a *shared vision of sustainability* built upon a *common approach for measuring and evaluating* apparel and footwear product sustainability performance that will spotlight priorities for action and opportunities for technological innovation. As mentioned under SCAP, this is also an on-going process, but in this case several Nordic stakeholders are privy to the process more than with SCAP. The work with implementing actual consumer behavior for the LCA tool has been an area of concern, as well as the process towards a consumer facing label. This is also something a NRM can follow up – as several stakeholders – both companies and organizations – are part of the process.

How

- Assessment tool that standardize the measurement of environmental and social (labor) impact.
- Lifecycle assessment + value chain perspective.
- 3 evaluation modules:
 1. Facility:
 - Environmental performance of material, packaging and manufacturing facilities.
 - Social and labor performance of material, packaging and manufacturing facilities.
 2. Brand:
 - Brand Module “environment” for apparel assess apparel product-specific environmental practices at the brand level.
 - Brand Module “environment” for footwear: assess footwear product-specific environmental practices at the brand level.
 - Brand Module “Social/Labor” for apparel and footwear assesses social and labor apparel and footwear product-specific social and labor practices at the Brand level.

3. Product:

- Rapid Design Module guide designers on sustainable product design with directionally correct information and streamline decision support framework.
- Materials Sustainability Index is an online platform that allows users to understand the data and methodology behind the Materials Sustainability Index Base Material Scores, which can be seen in the Rapid Design Module. It also serves as a data submission platform to improve the quality of material scores or add new materials.

Lead organization: Sustainable Apparel Coalition (SAC).

A trade organization comprised of brands, retailers, manufacturers, government, and non-governmental organizations and academic experts, representing more than a third of the global apparel and footwear market. The Coalition is working to reduce the environmental and social impacts of apparel and footwear products around the world.

A board governs SAC with representatives from the different stakeholder groups. Committees and task forces on different areas run by a secretariat and representatives from the member organizations.

4.2.3 Roadmap to Zero Discharge of harmful Chemicals (Ø ZDHC)

A cooperation between footwear and apparel brands and retailers as an answer to Greenpeace's Detox campaign. This can be characterized as a "forced" cooperative initiative, as the ZDHC group members (which include only companies – e.g. Benetton, Gap Inc, H&M, Levis, M&S, Nike, etc.) were targeted by Greenpeace directly or felt compelled to join to avoid being targeted.

Initiative: *Roadmap to Zero Discharge of harmful Chemicals.*

Goal

- Zero discharge of harmful chemicals in the apparel and footwear sector.
- Increase transparency.
- Identify new green chemicals.
- Stakeholder engagement.

How

- Pilot projects to build firm foundation.
- Multi stakeholder assessment (brand, retailers, chemical industry, government, NGOs etc.).
- Systems mapping/systemic perspective.
- PRTR (Pollutant, Release and Transfer Register) → Identify and develop a comprehensive generic inventory of the chemicals used in the apparel and footwear industry.
- Audits at dye houses, finishing, wool and washing facilities.
- Developed a generic audit tool → identify and agree to a cross-industry screening tool for chemical hazard (generic audit protocol & process for any type of facility + audit protocol and process for Dye House and Printer).

4.2.4 Better Mill Initiative (New initiative)

A partnership between Solidaridad, H&M and other major retailers working in China to develop tailor-made support and capacity building for 75 textile dyeing and finishing mills.

Initiative: *Better Mill Initiative*.

Goal

- Improve textile wet processing in China.
- Turning current negative impact into opportunities for both the dyeing and finishing industry in China as well as brands and retailers worldwide.

How

- Factory improvement.
 - Support to identify, prioritize and implement improvements related to:
 - Water and energy efficiency.
 - Chemical management.
 - Air emissions.
 - Solid waste and effluent.
 - Social aspects of the production process.

- Trajectory (15 month):
 - Training sessions (cleaner production + Higgs Index).
 - Self-assessment of the production process (shared with Solidaridad).
 - Expert assessment (clean production, chemical management, social aspects).
- Education.
- Multi Stakeholder Advisory Committee (MAC) → includes brands, factories, sector associations, government, science, service provision, civil society organizations, NGOs, financial institutions:
 - Contribute to increase mutual understanding and generate a well-rounded perspective on the challenges.
 - Identify and understand challenges root causes and explore solutions.

4.2.5 ECO TLC

As part of France's commitment to comply with the European environmental standards regarding sustainable waste management, an EPR has been set for the Clothing, Linen and Footwear (TLC in French) producers, distributors or importers. Eco TLC is the only organization accredited by the French public authorities to cover for the sector. This company is a non-for-profit private company directed by a board of industrials that aims to tend towards 100% reuse and recycling for used TLCs.

Initiative: *ECO TLC*.

Goal

- Regulation to engage producers in considering end of life of their products when putting it on the market.
- The funds collected are used towards supporting:
 - All sorting organizations that respects Eco TLC requirements.
 - R&D projects that are selected by a scientific committee to find news outlet and solutions to recycle used TLC.
 - Communication campaigns organized by local authorities to motivate end used to change consumers waste sorting habits.

How

- Every company that introduces clothing, household linen, and footwear items on the French market to sell it under their own brands, must either:
 - set its own internal collecting and recycling program accredited by the French authorities
 - pay a contribution to Eco TLC (the company accredited by the French Public Authorities to manage the sector's waste) to provide it for them.
- Companies that have registered (and paid) to Eco TLC are free to choose whether they communicate about this contribution → a communication kit is available on the Eco TLC registered-only access.
- There are neither obligation nor interdiction to communicate toward the end consumer.
- This contribution does not change the price for the end consumer.
- Measuring tools to analyze and develop reliable statistics about the industry.
- Real time mapping of all French collecting sites to inform citizens local and communities for free.

4.2.6 Natural Capital Coalition (NCC)

The Natural Capital Coalition is a global, multi stakeholder open source platform for supporting the development of methods for natural and social capital valuation in business.

Initiative: Natural Capital Coalition.

Goal

- Minimize business risk (invisible costs).
- Include ecosystems and ecosystem services in the decision process through economic incentives.

How

- Outreach:
 - Collaborate to engage key stakeholders from business, government and civil society in order to raise awareness and provide a leading edge forum to shape the future of business thinking and action on valuing natural capital.

- Thought Leadership:
 - Research studies to inform activities on the status of natural capital business initiatives, priority business sectors to focus on and their behavior change levers.
- Harmonized framework:
 - Development of a harmonized framework for measuring, managing and reporting natural capital in business and investor decision making.
- Business sector guide.
- Case examples.

4.2.7 UN Global Compact Sector Specific Code of Conduct

This CoC was developed by the Nordic Fashion Association for the UN, and is based on a CoC that was developed some years ago when the NICE project was launched. It focuses mainly on social issues. As the UN Global Compact has not earlier been sector-specific, but rather general – this was a first step in a plan to focus on the challenges of specific sectors.

4.2.8 LAUNCH and LAUNCH Nordic

LAUNCH Nordic unites global industry leaders and regional innovators to identify and scale sustainable innovations in materials. LAUNCH Nordic was created in collaboration with LAUNCH, a strategic partnership between NASA, NIKE, The U.S. Agency for International Development (USAID) & The U.S. Department of State

Initiative: A global innovation platform by IKEA, Novozymes, Kvadrat, 3GF, Danish Ministry of the Environment & The Fund for Green Business Development.

Goal (Focus areas 2014)

- Closed loop solutions.
- Cleaner manufacturing and Green Chemistry.
- Sustainable Investments and Procurement.
- End-user engagement.

How

- Understand the problem:
 - Framework global challenges:
 - Understanding of the problems, the systems and dynamics.
 - Identify landscape of solutions that have the potential to scale for impact.
 - LAUNCH convenes a group of leaders and experts in the specific system to provide insight regarding the LAUNCH Challenge.
- Collaborating to Address Complex Challenges:
 - A high profile 2-day convening of system stakeholders who will work on system transformation.
 - Platform for the public release of the LAUNCH Challenge.
 - Initial engagement of prospective new partners and LAUNCH Council occurs at the Summit.
- Identifying Innovations:
 - After synthesizing the perspectives from Big Think, the LAUNCH Challenge Statement is ratified and published commencing in a robust research and open innovation process that will identify hundreds of innovations.
 - Ten innovations are chosen through a rigorous review yielding the system “game changers”.
- Convening Collective Genius:
 - Innovators, engage with LAUNCH Council – a curated and multi-disciplinary group of leaders and stakeholders whose expertise, networks and resources align to the Challenge.
 - Over 3 days, LAUNCH guides discussions designed to identify opportunities and to chart a course of action to accelerate these innovations forward.
- From Conversations to Action:
 - The LAUNCH Accelerator is a 6-month program post-Forum designed to strengthen Innovator strategies, expand their networks and resources, and to amplify their potential for global impact.
 - Through the successful scaling of these potentially high-impact LAUNCH Innovators, meaningful transformation of the system can be achieved.

4.2.9 The Sustainable Consortium

The Sustainability Consortium is an organization of diverse global participants that work collaboratively to build a scientific foundation that drives innovation to improve consumer product sustainability.

Initiative: Develop transparent methodologies, tools, and strategies to drive a new generation of products and supply networks that address environmental, social, and economic imperatives.

Goal: Through multi-stakeholder collaboration, our mission is to design and implement credible, transparent and scalable science-based measurement and reporting systems accessible for all producers, retailers, and users of consumer products

How (Clothing, Footwear & Textiles Sector Working Group)

- Collaboratively work to build a consistent, practical, and science-based approach to sustainability assessment and information reporting that provides a foundation for:
 - Fair competition.
 - Innovation.
 - Improved data quality and availability.
 - Improve environmental, social, and economic performance.
- Focus during 2014:
 - Nylon.
 - Polyester.
 - Rayon.
 - Cotton.
- Research will include social and environmental impacts across the life cycle.

Other initiatives that so far have not been evaluated by SFA, but have been identified and will be considered in relation to developing a Nordic Roadmap – if they are relevant and/or of use.

4.2.10 Worldwide Responsible Accredited Production (WRAP)

To confuse things slightly, this organization uses the same acronym as SCAP/WRAP. This WRAP, however, works mainly with social issues: Headquartered in Arlington, Virginia, USA with offices in Hong Kong and Bangladesh and representatives in India and Southeast Asia, Worldwide Responsible Accredited Production (WRAP) is an independent, objec-

tive, non-profit team of global social compliance experts dedicated to promoting safe, lawful, humane and ethical manufacturing around the world through certification and education. The latter has increased in importance. www.wrapcompliance.org

4.2.11 Reducing the Impact of Textiles on the Environment/RITE group

This voluntary organization (formed by M&S, Colour Connections, Univ of Leeds and Ecotextile News) was active in the period 2007 until 2012 with e.g. annual conferences, when it ceded operations and instead became part of the University of Leeds' textile institute program.

4.2.12 Sustainia

High-profile organization with strong ties to the Nordic region, which seems to have ambitions to enter the textile sector. But the solutions highlighted are solar solutions for rural Africa, a zero-carbon factory, sustainable cooking fuels and hybrid ships, nothing in direct relation to textiles. UN Global Compact and WWF are among the active partners, also General Electric. Until there is something more concrete on textiles, it is difficult to evaluate this initiative. In looking at development in e.g. Africa for the textile industry, some of their factory low- or zero-carbon solutions might be interesting. High level of activity in the Nordic region.

4.2.13 Fair Wear Foundation

Fair Wear Foundation (FWF) is an independent, non-profit organization that works with companies and factories to improve labor conditions for garment workers. FWF's 80 member companies represent over 120 brands, and are based in seven European countries; member products are sold in over 20,000 retail outlets in more than 80 countries around the world. FWF is active in 15 production countries in Asia, Europe and Africa. Clean Clothes Campaign is one of the organizations behind Fair Wear.

4.2.14 Fiber-specific initiatives

Better Cotton Initiative (BCI) and *Cotton Made in Africa* (CMiA) are two cotton-initiatives where the Nordic region has been actively cooperating. Brazilian Cotton Growers Association (ABRAPA/ABR), has just joined BCI, and BCI also cooperates directly with CMiA. It has just been an-

nounced that Kolding Design School and Copenhagen Fur will cooperate on a study of fur's sustainable profile. (It is however, not decided whether fur falls in under a potential roadmap.) The *International Wool Textile Organisation* (IWTO) also has generated activity in the Nordic region, specifically on the benefits for wool in the consumer-phase, with new research-activity starting up. A cooperation (small scale) with the *Fibershed* (see under Local production) project in the US is also giving valuable input on LCAs and carbon sequestration in wool production. *HRH the Prince of Wales Campaign for Wool* has become a global campaign focusing on wool's many sustainable aspects, as well as wellness and safety issues related to the fiber (moisture absorbent, non-flammable, etc. Norway is the only Nordic country where HRH CFW has a Wool Week. Other cities hosting such events are New York, London, Paris, Milano, Tokyo, etc. Educating the consumer on a specific fiber and its eco-credentials is a main aim of this campaign. The *Textile Exchange* (TE) has pronounced a possible project to evaluate animal welfare in relation to wool production, after doing such a project on down. This is also a project the Nordic region is being asked to give input on. TE also just launched Preferred Fiber Guide.¹¹

4.2.15 Initiatives that are related to EPR

The oldest of these is based in the Prato district of Italy and is specific to wool-recycling (technical, not chemical). If done in the region, there is a label associated with the yarns. I:Co's collaboration with H&M and several other international companies is the fastest growing and newest collection and recycling system for textiles. This initiative was originally in the Nordic initiatives but as it is the Swiss company I:Collect who has initiated the collection and handling of the return to these chains, and this is handled on a global basis, we decided to move this to the international initiatives. The returns include giving the customer some sort of rebate towards their next purchase and the chains themselves do not handle the actual practical arrangements of sorting, recycling, etc.

Smaller company-specific EPR systems also exist, Patagonia perhaps having the most advanced system and the most ambitious goals. Several of these company-initiatives cooperate with Teijin EcoCircle in Japan,

¹¹ <http://www.ecotextile.com/2014061012639/fashion-retail-news/textile-exchange-launches-new-fiber-report.html>

which handles synthetic material recycling. Cradle to Cradle consultancies have developed specific solutions for companies, also for textiles. Examples of both technical and biological loops for recycling should be evaluated by the consortium, specifically in comparison with other reuse/extended use options. In relation to the evaluation criteria at this stage in the inspiration assessment, the usefulness in a NRM/potential for duplication will depend on a more general assessment on the waste-hierarchy. This has to a certain degree already been done in the NCM Textile project 3 – task 2: *Survey of existing EPR systems and business models which can increase reuse and recycling of textiles*. This report also includes some examples with repair-services, which is a way of avoiding recycling – but rather extending use – which is also a form of EPR. As e.g. Teijin EcoCircle has been known to refuse to cooperate with small companies, the fact that one has to go through I:Co or other larger collection companies, could impact certain issues relating to free trade. It would be interesting to study this initiative more closely as several Nordic countries have joined, and there are many claims from other collection systems that I:Co is diverting donations, etc. I:Co, on the other hand, claim they are engaging a new group of consumers to donate clothing rather than binning (putting in the waste) the items.

4.2.16 Small initiatives with scalability/improvement potential

Wardrobe stewardship

Local Wisdom, a research project exploring the “craft of use”, Kate Fletcher and the Center for Sustainable Fashion (UK). Also includes ideas for sharing. www.localwisdom.info

Textiles Environmental Design, best known for TED’s TEN (Design Activism) <http://www.tedresearch.net/teds-ten/> (also includes strategies for less waste, less chemicals, etc).

The Good Wardrobe Blog (UK) gives general advice and encourages repair, reuse, etc. “A free style-sharing community hub.” (www.thegoodwardrobe.com).

The Live Better Challenge (UK) covers several areas, but has recently brought up mending as an issue (<http://www.theguardian.com/lifeandstyle/live-better>).

CleverCare® is the newest consumer-facing project from Ginetex and H&M, in cooperation with NFA on washing and drying of clothes. The internet site needs a lot of reworking and better knowledge-based information before it is functional (www.clevercare.info).

Culturability BSR – Culture for Sustainable Development is a project for the Baltic Sea region, funded by the EU, which is exploring business opportunities for culture, and the project #GooDeed is currently being explored for wardrobe stewardship via social media and web-based platforms.

Design for sharing

Ouishare (FR) not specific to clothes/textiles, but has expanded to other countries, though rather hard to understand from their webpages exactly what the sharing includes. *A think and do-tank with the mission to empower citizens, public institutions and companies to create a collaborative economy: an economy based on sharing, collaboration and openness, relying on horizontal networks and communities* (<http://ouishare.net/en>).

Rent the Runway (US) is a commercial rental internet-service, which is hugely successful and is amassing massive information on quality, which has yet to be used for research-purposes.

FabLab (NO) is a global collaboration initiative for local manufacturing, open collaborative workspaces in all corners of the world and an open-source, sharing design approach where no one owns the design. So far does not work with textiles, but has a project on shoes (<http://www.dyvikdesign.com/site/>).

Local production

Fashion Enter (UK) has a Factory for large scale production and a Fashion Studio for grading, sampling and small productions runs. Both units are Sedex approved and produce for leading retailers, etailers, designers and new business startups. Part of the Re-shoring movement. Contact established by NFA/NICE (www.fashion-enter.com).

Fashion Manufacturing Initiative (US) has been launched by the Council of Fashion Designers, an investment fund which aims to revitalize New York's fashion production industry, underwritten mainly by Ralph Lauren (<http://cfda.com/programs/the-fashion-manufacturing-initiative>).

Fibershed (US) – see Fiber-specific initiatives further up and ETN issue No 60 p 55. Cooperates with NFA/NICE (www.fibershed.com).

The Southern African Sustainable Textile and Apparel Cluster (SASTAC) (SA) In an ambitious move aimed at providing consumers with more traceable and sustainable textile and apparel products while supporting local industry, the South African government is to pump USD 18.9 million into a new “sustainable textile national cluster” SASTAC has been developed and funded by the government's Clothing and Textiles Competitiveness Programme, which also targets employment stabilization and competitiveness in the textile and apparel sectors. The cluster has announced that during its first year of operation, it will implement

“competitive improvement interventions” to build the foundations of improving sustainability long-term (www.dti.gov.za).

Online knowledge-building and sourcing platforms:

Ethical Fashion Forum/Source Intelligence Forum (UK) – sourcing, events, access to experts and data-bases, market-reports and training materials. Membership based. Cooperates with NFA/NICE. Ethical Fashion Forum, together with Clean Clothes Campaign, Greenpeace, GOTS, TE and several others have started Fashion Revolution, which commemorates April 24th each year in memory of the Rana Plaza tragedy where consumers are asked to turn their clothes inside out to show where their clothes are made. As it is not a legal requirement in the Nordic countries to label apparel with country of origin, the #insideout is perhaps not so relevant, but the very active use of Facebook in each Nordic country for Fashion Revolution is an interesting aspect for consumer engagement (www.ethicalfashionforum.com and www.fashionrevolution.org).

Source 4 Style (US) is Summer Rayne Oakes’ business to business sourcing data-base for sourcing materials, where she also has developed a system of scoring/ranking. Must register as member. Close relationship with NFA/NICE (www.source4style.com).

C.L.A.S.S./The Fabric Source (IT/DK) is a sourcing library, with some production facilities included in the mix, based on criteria for sustainable production – cooperate with Livia Firth. Libraries in several cities, including Copenhagen, where the work has begun to include more local fabrics/yarns. Close relationship with NFA/NICE (www.classecohub.org).

Ecoterre (UK) is mainly an online store aiming to sell sustainable fashion, but post news items with focus on sustainable issues (www.ecoterre.com).

Ecotextile News (UK) is a subscription only magazine and online site staying abreast with all the news “fit to print” on environmental and social issues relating to textiles, apparel and fashion. Works closely with the Nordic region through the original contact made by NFA/NICE in 2008.

The Sustainable Fashion Academy (SE) is also currently development an online education and training platform, *SFA Online*. It aims to offer education and training modules, as well as a one stop shop for other tools and resources, some of which will be promoted in partnership with the above mentioned actors.

Competitions/challenges aiming to encourage change (nudging/gaming)

Green Carpet Challenge/Eco Age (UK) is Livia Firth's mainly blog-focused campaign to ensure designers' use of sustainable materials. She also cooperates with other initiatives which are project-based. EcoAge is also a consultancy. Cooperates with NFA/NICE and a dialogue has been established on a possible Green Carpet Nordic challenge (<http://www.eco-age.com/green-carpet-challenge/>).

The purpose of the GLASA Awards (Global Leadership in Sustainable Apparel Award) is to inspire bold and courageous leadership in the apparel sector and to mobilize key stakeholders around promising ideas or practices that can significantly increase the sustainability performance of the apparel industry. The award itself is a way to communicate – but more importantly the award *process* leads to a report and recommendations that are relevant for the whole industry. To learn more about the award and the process, you can visit www.glasaaward.org. An internationally focused competition which aims to point attention towards those spearheading change in the field of sustainable fashion and apparel. So far the award has been given to SCAP/WRAP and Kering (EP&L work). Run by the Sustainable Fashion Academy (SE).

Consultancies working with sustainable apparel

TexSture (NE) cooperates with Minister of Foreign Affairs Netherlands, Garments Without Guilt (Indonesia), ETN, Messe Frankfurt, Prom Peru, brands like Benetton and Bestseller. Offers access to pool of consultancies (<http://texsture.com/>).

Colour Connections (UK) was part of the original steering group and founding member of the RITE group (see above). Has developed EcoMetrics, a system evaluating the Environmental Damage Units of any apparel item produced. Pay service and consultancy. The Nordic region/NFA/NICE has a long-standing relationship with CC (www.colour-connections.com).

Indicate (US) is a consultancy for the Higg Index, started by former SAC VP, Ryan Young (www.indicateadvisory.com).

The Great Recovery (UK) works with several areas, but also apparel; main focus is closing the loop. Cooperate with Worn Again and the Green Alliance (www.greatrecovery.org.uk).

RESP (CH) Responsible Ecosystem Sourcing Platform for jewelry, cosmetics and fashion, along with governmental/inter-governmental agencies, research institutions and civil society organizations. Has working groups on wool and on animal skins from endangered species. Works with major fashion companies to protect ecosystems (<http://resp.ch/>).

Oakdene Hollins (UK) is a research and consulting company working in several sectors to support change towards more sustainable products, services and supply chains. Eco-label scheme managers for UK. Long-standing relationship with SIFO and RITE group, interested in more local wool production and utilization (<http://oakdenehollins.co.uk/>).

Other ethical initiatives

The Accord on Fire and Building Safety (Bangladesh) and *Alliance for Bangladesh Worker Safety* are the two main initiatives in the wake of the tragic fires in Bangladesh. One is more European-based, the other works mostly with US companies. Better cooperation between the two has been an issue.

Rankabrand.org has ranked 208 apparel and shoe brands in relation to sustainable and ethical parameters. They have evaluated workers' conditions, eco-friendly materials, etc. However, it is not easy to find out what exact criteria they base the evaluations on.

Solidaridad is behind the Made-By assessment and are cooperating closely with H&M (<http://solidaridadnetwork.org/textiles>).

IAF (International Apparel Federation) has the major textile organizations in India, Bangladesh, etc as members and is therefore in a position to upscale education and other pro-active initiatives, however the organization is conservative and "business as usual" oriented.

A new group (with several large companies from outside the textile sector, but Marks & Spencer as one of the partners), calling itself the Roundtable for Product Social Metrics, a Handbook which can be downloaded online for free (<http://product-social-impact-assessment.com/wp-content/uploads/2014/08/Handbook-for-Product-Social-Impact-Assessment.pdf>).

4.3 Nordic initiatives

In the mapping of the Nordic Initiatives, there was some overlap and some discussion as to where initiatives belonged, as some had more international ties, and others could be specific to one country – but have branched out. However, we are comfortable with the current overview. The Nordic initiatives were picked on the basis of the knowledge within the consortium, and with help from Nordiska avfallsgruppen.

Nordic Council of Minister sub-groups and projects that are not in the mapping:

- Nordiska kemikaliegruppen (NKG) was contacted at several levels, but we got the answer that this group does not run its own projects, but rather has sub-groups that apply for funding.
- Nordiska avfallsgruppen (NAG) commissioned a guide (short video/fast drawing and brochure) for youth and families with small children on sustainable consumption of textiles and apparel, but as this was not yet ready, it is not part of the over-view.
- Gruppen för -hållbar konsumtion och produktion (HKP) had a specific project, which we included under the Nordic Swan, as this was a main aim for this project.

All in all there are 12 Nordic initiatives that have been mapped. Three of the initiatives are based on work in NAG, and also cover the Nordic region. There is a large variation between the initiatives, from working with specific fibers to internet sales of vintage clothes, and there is no obvious structure of how these could cooperate better, or be part of a RM. However, building on the platforms that represent communication, information-flows etc., is a good idea, as starting from scratch every time is time-consuming and counter-productive.

Table 4 lists up all the Nordic and national initiatives and gives their main region. The complete tables with all Nordic and national initiatives are given in Appendix 4. We have cut out the evaluations, as these are not part of the final report.

Table 4: List of the mapped initiatives and their main region

Name of initiative	Main region
Nordic initiatives	
A Nordic strategy for collection, sorting, reuse and recycling of textiles (NCM project 2)	Reduce
An extended producer responsibility (EPR) system and new business models to increase reuse and recycling of textiles in the Nordic region (NMC project 3)	Reduce
LAUNCH Nordic	Reduce
NICE – Nordic Initiative Clean & Ethical	Reduce
Nordic Ethical Trading Framework	Reduce
Nordic Swan Eco-label	Reduce
North Atlantic Sheep and Wool Conference	Redirect
Redesign	Reduce
The Goodeed app	Replace
The Nordic textile reuse and recycling commitment (NCM project 1)	Reduce
Trendsales	Replace
VikingGold	Redirect
Danish initiatives	
Byttemarkeder	Replace
Chare	Replace
Copenhagen Fashion Summit	Reduce
Copenhagen take-back scheme	Reduce
Curves Ahead	Rethink
Danish textile partnerships	Reduce
Ethical Charter	Rethink
Herringprojektet	Replace
Innovation network	Replace
KompetenceCenter Haderslev	Reduce
Mapping projects on chemical use in textiles	Evaluate
Preventing and recycling textile waste in Denmark	Replace
Project Handmade 2014	Replace
Re-Second	Replace
Share Your Closet	Replace
The Fabric Source	Reduce
Vigga – leasing of baby- and children’s wear	Replace
Swedish Initiatives	
ChemSec	Reduce
Cooperation Åhléns and Myrorna	Reduce
F3 Function Future Fashion	Reduce
Fair Trade Center	Reduce
Fashion Talks	Reduce
ForTex Innventia	Reduce
FW:Learning	Reduce
H&M & ELLE Conscious award	Replace
Hållbar Butik	Replace
ISH Ideell Second Hand	Reduce
Kemikaliegruppen (Swerea)	Reduce
Lånegarderoben	Replace
Malmö Fair Fashion City	Replace
Mistra Future Fashion	Reduce
Naturskyddsföreningen	Reduce
Ragn-Sells and Myrorna cooperation	Reduce
Re:newcell	Reduce
ReturTexAB	Reduce
SSEI Swedish Shoe Environmental Initiative	Reduce
Studio Redesign	Reduce
Swedish Environmental Protection Agency	Reduce
Swedish Red Cross and Swedavia	Reduce
Swedish Textile and Water Initiative	Reduce
Swedwatch	Reduce

Name of initiative	Main region
Svenska Kriminalvården and The Swedish Red Cross	Reduce
T4RI Textiles for Recycling Initiative	Reduce
Textildialogen	Reduce
Textile Fashion Center	Replace
Textilt avfall en framtida resurs (Textile waste a future resource)	Reduce
Textilverkstan	Reduce
The Global Leadership Award in Sustainable Apparel (GLASA)	Reduce
The Sustainable Fashion Academy	Reduce
The Swedish School of Textiles	Reduce
There is no waste (Det finns inget avfall)	Reduce
UR (Swedish Educational Broadcasting Company) on textiles	Replace
Utredning om ekonomiska styrmedel för kemikalier	Reduce
Norwegian initiatives	
Dualism of eco-labels	Reduce
Environment and health – a research-based knowledge base – B.7.03 Chemicals in textiles	Reduce
Establishing Slow Fashion – Made in Norway	Reduce
Ethical trading initiative Norway (IEH)	Reduce
Green Nåløyet award	Reduce
Grønn Hverdag: Research on ethics in clothing production	Reduce
Information page on chemical in textiles	Reduce
Made to fit	Rethink
Potential for increased material recycling of textile waste and other waste types (paper/cardboard, metal, and glass)	Reduce
Public procurement: sustainable tool for textile and work clothes / uniforms	Reduce
Restricted Chemical Substances (Kjemikalieveileder)	Reduce
Sustainable regulation	Evaluate
Textile panel	Reduce
Textile waste as a resource	Replace
Textiles (Information page)	Reduce
The NorWay	Replace
Valuing Norwegian wool	Redirect
Wool – children and youth breathe life into cultural heritage	Redirect
Finnish initiatives	
Advanced Cellulose to Novel Products (ACel)	Redirect
Benefit from hemp – new opportunities for rural businesses (Hyötyhamppu)	Redirect
Climate diet (ilmastodieetti.fi)	Replace
Design Driven Value Chains in the World of Cellulose (DWoC) research project	Reduce
FINATEX education program (vastuullisuus käsikirja)	Reduce
FuBio Cellulose research program, Ioncell fiber	Redirect
Kierrätyskeijut	Replace
Kulutus.fi	Replace
Punomo	Reduce
Research project on potential of using local hamp	Redirect
TEXJÄTE –Research project on recycling of textiles (Tekstiilijäte – kierrätyksen mahdollisuudet ja esteet)	Reduce
Woollen Innovations	Redirect
Icelandic initiatives	
(None found within the scope)	

4.4 Conclusions

Work on mapping of ongoing initiatives show great commitment and many initiatives on the area. The initiating organizations range from businesses, municipalities to individuals. This shows that the lists and mapping needs continuous updating. Our main purpose of the mapping was to provide an overview of the core set of ongoing work and to show how initiatives can contribute to Nordic Roadmap. This discussion will continue in Chapter 6.

5. Assessment

This chapter aims at answering the important questions stated in the tender document. We have described earlier our own methods for answering questions A and C. For answering the other questions we have used our collective knowledge on the topics and knowledge from the mapping.

5.1 Important findings

5.1.1 A: Strengths and weaknesses of the initiatives

- There are many initiatives in the Nordic countries and they ranged from established to small and innovative.
- The work has mainly focused on the perspective of so-called “reducing resource use”. This bias applies to the number of initiatives, but it has also become evident that the larger and more established initiatives flourish in this region.
- We see a correlation between the level of maturity and the level of innovation amongst the initiatives. The more established an initiative is, the more likely it is to be low on innovation.
- An important dilemma surfaces when attention is on better utilization of waste, as this may indirectly contribute to increased growth in volume.

5.1.2 B: Unexplored areas and further research

- There is also correlation between where we find the least knowledge and where there is the greatest opportunity to make a difference environmentally.
- Knowledge follows an inverted waste pyramid, where prevention, longevity, etc. are very important, but with a low knowledge-level. While the top of the waste pyramid is better documented.
- More knowledge on market understood as an exchange of money, and little on what goes on outside these formal markets.
- Little knowledge about the latter parts of the value chain.

5.1.3 C: Nordic positions of strength

- Strengths and weaknesses need to be defined as opposed to what/whom.
- The consumer has a low level of know-how about textiles and apparel, related to materials, sustainability, quality and care.
- The Nordic region's main strength is an ease of dressing for movement and the out-door elements.
- Handicraft traditions are strong, however they may be disappearing.
- There is some renewal of interest in more local sourcing and local fibers.
- Reuse and recycling are the main areas of focus, in spite of lack of a recycling industry and limited reuse market.
- The Nordic region has a high standing as being ethically and environmentally concerned internationally.
- In spite of language and cultural differences, we have a tradition of cooperating.
- Our grasp of ICT, use of social networks and uptake of electronic tools and apps, have not been used to their full potential to change consumer behavior.
- Inclusion is an important under-pinning for policies, which goes to our sense of democracy and participation in the public sphere.
- Defining the sector number-wise is difficult because of diverging statistical criteria.

5.1.4 D: Synergies between policy areas

- The policy evaluation has focused on higher level policy with special consideration of EU-policy.
- A policy for the area of textiles is missing and where synergies are possible, This is a great opportunity for the Nordic region to make a difference.
- The Nordic regions can act as forerunners. Given the high level of trust in government and the spirit of cooperation.

5.2 Strengths and weaknesses of the initiatives (A)

For the purposes of Evaluation, all initiatives have already during the mapping process been allocated a Maturity and Level of Innovation score. These scores are not included in this report. The evaluation has been simplest for narrowly-defined initiatives, while it has been more difficult for broad initiative such as “Mistra Future Fashion” which contain a myriad of different activities, some of which may be incremental and some of which may aim at transformative change. In these cases, the headline objectives of the initiative are examined to determine the level of ambition in terms of innovation.

There are several methodological challenges connected to this analysis. We have divided the work so that those who have the best knowledge on national initiatives have undertaken the evaluation. This choice made the work more efficient, but also opened up for the concepts and scales being understood and used differently. Quality control has sought to compensate, but it is still possible that there are some differences in interpretations. Both in the presentations of initiatives and in the assessments, Denmark stands out as, as mentioned before the country where “talking up” and evaluating the initiatives positively is more prevalent. This may be due to culture, and not actual differences between the initiatives.

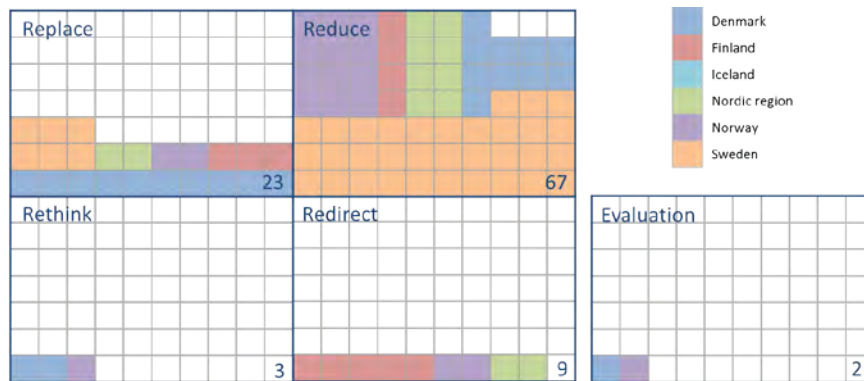
In the diagrams for the presentation of the initiatives, we have chosen just one area/region for each initiative. Several initiatives have activities in several of the five areas/regions. Especially the production of knowledge is often a secondary category/region. We have therefore chosen not to include this in the analysis. As all initiatives have been placed in just one main area/region, the other areas/regions will have more activities than the diagram actually reflects.

There is also a considerable uncertainty in how the initiatives have been chosen, where a better knowledge of a certain area might influence the number of initiatives in that area. Therefore the very simple statistical analysis presented in this report must be used with some caution.

5.2.1 Overview of the initiatives

In order to get an overview, the next step was to plot the various initiatives on diagrams:

Figure 16: Placement of initiatives per category and country



Firstly, it is clear that an overshadowing majority of the mapped textiles initiatives falls under the category of *Reduce* i.e. on areas addressing cleaner production, supply chains, reuse and recycling, public and private collection systems, recycling technologies (closed loop), private reuse exchanges, improved production technologies/processes (low input/emissions/chemicals), organic production, labeling of environmental footprint etc., criteria and regulation, links to labels, chemical restrictions, criteria on recycled content, working conditions etc. In terms of quantity Sweden seems to have a relatively high activity level on these areas.

Secondly, we see that quite a few initiatives under the *Replace* category in the Nordic countries with the highest activity level in Denmark i.e. repair and fitting, improved exchange policies, lower volume – higher quality, design for longer life, higher quality/durability of textile products, labeling of technical properties, care and use, longevity, guarantees, education of designers/purchasers, awareness of environmental consequences (education, campaigns etc.), “Nudging” and choice editing, promote and spearhead a better understanding of value and longevity, wardrobe stewardship

Thirdly, the categories *Rethink*, and *Redirect* collect relatively few initiatives. Notably is that Finland has a significantly higher initiative density on the area of *Redirect*, i.e. Initiatives encouraging use of local materials like wool, linen, viscose, hemp, new materials and Nordic textile traditions and artisan production.

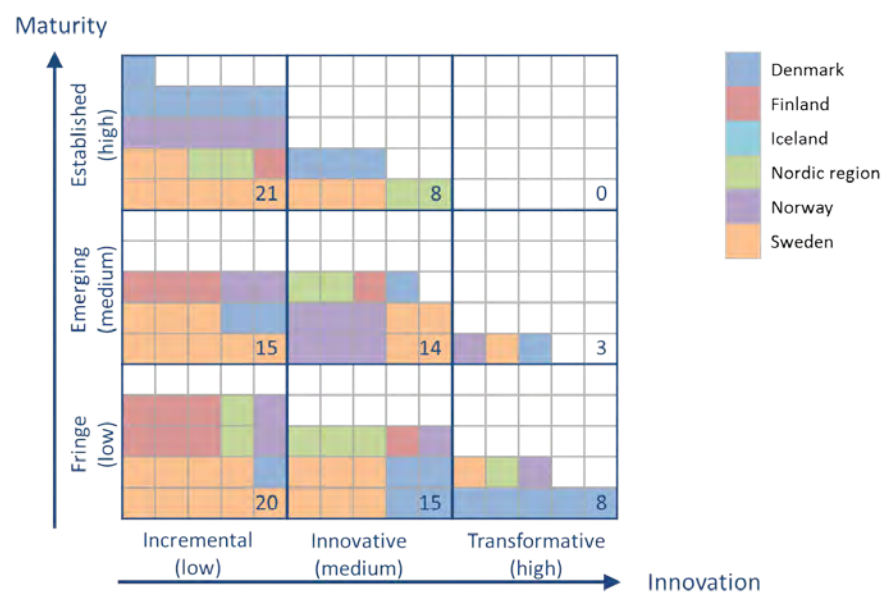
It is quite possible that the differences between the number of initiatives in the four areas/regions reflects the way we have chosen the initiative and that there is actually more activity in the areas of Rethink, and perhaps Redirect, than the table indicates. We've been looking for initiatives that focus on environmental work in the textile sector. Work is being done in other sectors that may not present themselves as an environmental initiative, but which focus on Rethink and Redirect. This does not mean the effect of the work can have an environmental positive impact. The unintended environmental effects can be larger than the stakeholders in these initiatives understand. This is an aspect we did not consider while looking for initiatives, and should be addressed by future work on the RM.

Levels of maturity and innovation per country

Maybe not that surprisingly, we see a correlation between the level of maturity and the level of innovation amongst the initiatives. The more established an initiative is, the more likely it is to be low on innovation. Correspondingly, the bulk of what we label as transformative initiatives are fringe initiatives, often run by a few enthusiasts on their spare time.

In terms of differences between the Nordic countries the diagram shows that Denmark seems to stand out on the innovation axes with more transformative initiatives than the rest of the countries together. Swedish initiatives seem to be on the low side in terms of innovation and the same goes for Norwegian and Finnish initiatives.

Figure 17: Levels of maturity and innovation per category



Initiatives labeled as Replace tend to score higher on the innovation axes.

We could not find any established initiatives that we judged to be transformative by nature.

Stakeholders

We have not made a similar mapping of the types of stakeholders for the various initiatives. It is, however, possible to say something about this. Looking at the textile sector as a whole, it is striking that businesses are more active than private and voluntary sectors. These initiatives are supported by voluntary efforts, business or industry organizations, and research funding. A number of initiatives are initiated by national authorities or at the Nordic level, but it is striking that the authorities have been concerned with the less innovative projects and projects with the Reduce perspective. The same can be said of business-supported projects. Efforts within Replace on the other hand, are more driven by activists within consumption. Efforts within Redirect are closely related to economic development. There are few initiatives and thus also few players behind Rethink initiatives. Probably we would have found more if we had investigated sectors more concerned with health, inclusion and ethics, than the environment.

Elements of a strategy

Looking forward: How can the initiatives contribute to a Nordic Roadmap?

A Nordic Roadmap should be unique and build on the positions of strengths in the Nordic textile and Fashion sector. Given that the initiatives we have found also cover the areas we will need activity around and knowledge on, the new activities should be in areas that have been covered to a lesser degree. This is particularly important because the Nordic strength will not necessarily be found within the Reduce perspective. This is the perspective that the major international initiatives are focusing on and with far greater resources than we will have available in our region. Regarding perspectives within Reduce, knowledge on the field has come far enough that it is appropriate to implement regulatory measures (Ban on toxic chemical content, detailed content labeling, content labeling of unwanted chemicals, nano silver, GMO, etc, labeling of the environmental impact of production, origin Labeling, product liability regulation, EPR).

Transformative initiatives should be stimulated in the final recommendations for a Nordic Roadmap under WP5 because of their ability to pave the way for what is likely to come.

If a Nordic Roadmap is to play a constructive role it must most likely draw on the uniqueness and position of strengths of the Nordic textile and fashion industry as well, and give particular focus to ongoing transformative and innovative initiatives.

The picture is less clear for the Maturity axes. Already mature initiatives may not need to be nurtured further. It is more important to translate new knowledge into policies. Focus in the Roadmap could rather be on the more fringe initiatives that have potential for expansion but only if they enjoy support. On the other hand, the Roadmap should build on the knowledge and experience accumulated in the more established initiatives. This can be done by engaging some of the key people in these stakeholder groups. The work of the RM should include various tasks with dissemination, communication, policy development and knowledge acquisition. And there is much to gain by using the stakeholder groups that have accumulated knowledge over time.

A potential way to build on this (and future) mapping and assessment exercises is to develop different forms of support according to where on the Maturity axes an initiative exist as given in table 5.

Table 5: Initiatives' level of maturity and the type of support needed

Initiative Type (Level of Maturity)	Nordic Roadmap Support
Fringe	<i>Nurture</i> – example of activities might include: Addressing systemic barriers Funding capacity building Seed capital Disseminating information about the initiatives Facilitating knowledge exchange
Emerging	<i>Encourage</i> – example of activities might include: Disseminating information about the initiatives Facilitating knowledge exchange
Established	<i>Engage</i> – example of activities might include: Facilitating information exchange between initiatives Encouraging and coordinating knowledge exchange between countries Supporting smaller players inclusion in initiatives Turn knowledge into action Using established channels for sharing information and arranging meeting venues.

5.3 Unexplored areas and further research (B)

We will now discuss knowledge of the situation, both through identifying unexplored areas, and by providing suggestions for further research. The discussion is organized in some main themes. First some areas where knowledge is particularly weak are highlighted, followed by looking specifically at the four Rs. It is a common feature that knowledge is weakest where there would be most to gain in from environmental point of view, and where the Nordic countries have the opportunity to do a difference.

5.3.1 *Little knowledge on the bottom of the pyramid*

There are major differences in the level of knowledge between the various areas that the RM potentially will cover. There is also low correlation between where we find most knowledge and where there is the greatest opportunity to make a difference environmentally. Simply, one can say that the knowledge follows an inverted waste pyramid, where prevention, longevity, etc. are very important, but with a low knowledge-level. While the top of the pyramid waste is better documented. Another important distinction is between the market understood as an exchange of money and what goes on outside these formal markets. There is a large potential in the private sector (Laitala and Klepp 2014) while knowledge is gathered on the cash economy. Overall, one can say that the knowledge level reflects a belief in “green growth” and a banal understanding of circular economy in favor of a more realistic understanding of the relationship between consumption growth, technology and environmental impact.

The differences in the level of knowledge is already reflected in the structure of the focus areas and their content. While the 4 Rs are all large and demanding areas or regions; the concepts, policy tools or focus areas are best developed in Reduce. There are far fewer areas of focus for the other regions, and these are not specific but general.

Another consistent feature of the level of knowledge, is that this is concentrated on textiles understood as something problematic and undesirable. There is more knowledge about waste, environmental impact, than what could possibly be good fabrics and a positive message. There is no reason to believe that the Nordic textile sector will take a lead internationally if our contribution is being a little less bad than others. There is little knowledge about what the Nordic countries have to “offer”. What is a Nordic clothing culture? What advantages do we have that could bring us out of the negative spiral in the textile sector with in-

creased volumes, declining prices and low and decreasing technical, use and aesthetic qualities? What are the causes of consumption growth and the priority of quantity over quality? And last but not least, what is quality and how can it be brought forward in product marketing and consumer knowledge? While these big crucial questions are not tackled, there is increased knowledge about how to deal with the results, or symptoms of these developments (reuse, recycling, control of (an ever growing) value chain).

5.3.2 *Little knowledge about the last parts of the value chain*

Knowledge about the scope of the problems and dealing with the above solutions and positive aspects are related to where in the supply chain knowledge is concentrated. In the survey of initiatives, we noted where in the value chain they have their main focus. In this work, a simple over-view was used, with design, sourcing, production, marketing, distribution, active lifetime and waste management.

It is clear that it is not easy to keep the various stages apart. The relationship between them is blurred, especially between “neighbors” such as active lifetime and waste management, or between marketing and distribution. The same can be said about the relationship between “design” and many of the other stages. But another important discussion is the level of detail in itself. If we think of production and consumption as two equal fields or areas there are five stages covering production, while consumption is covered only by one stage, even though it includes several phases such as acquisition, active use, maintenance (laundering, mending etc.), and potential reuse. Likewise, it is possible to combine the production stages to one phase and see the supply chain as three stages; production, consumption, and waste management.

How much knowledge we have about these three stages is of course a question for discussion. But while other regions of the world are big on production, it is the high consumption of textiles that characterizes the Nordic textile sector. However, we have the possibility to influence production much more than currently done through the ownership of some of the world’s biggest players within textiles (e.g. H&M, IKEA). But if we look at these initiatives they are reversely weighted. Consumption and waste management have about as many initiatives each, and about half the number of initiatives in relation to production. Very few initiatives concern themselves with marketing and distribution. This may be due to the way in which they are registered. We believe e.g. that knowledge

about the marketing of less polluting fabrics in the form of labeling is relatively good. But initiatives that include eco-labeling are categorized as “production” because the labels also regulate these matters.

Different countries have different emphasis on different stages of the value chain. Sweden is distinguished by being mainly concerned with waste. There are more initiatives on this theme in Sweden than in the other countries combined. But the same can also be said about the Swedish initiatives in terms of design. The Danes are distinguished by having many initiatives aimed at the user phase, Norway has many dealing with sourcing and Finland on manufacturing. The Nordic initiatives are diverse in their themes. The same differences in focus relative to the value chain can be seen in the way the countries have a different profile in relation to the four Rs; Reduce has a dominant position, particularly in Sweden and is as mentioned about the control of inputs in production. Evaluate as a region is not really reflected here. The reason is that the main focus for each initiative has been chosen. Knowledge production is something that is in addition to a primary focus, and thus not highlighted in the comparison. This does not mean that none of the initiatives produce knowledge. This relates primarily to the research projects, but also many of the others.

The relationship between themes and knowledge has not been studied in this project, but here the stakeholders behind the initiatives give an indication. If we keep the division into production, consumption and waste management, they also represent various stakeholders. Production is dominated by industrial and business when it comes to responsibility and knowledge. Waste, however, is something authorities have (and sometimes take) responsibility for. Consumption on the other hand is a field with a low degree of organization, and none of the initiatives we have registered are initiated by the consumer authorities/consumer organizations. However, there are initiatives of loosely organized consumers in the form of Facebook groups etc. In some cases initiatives with basic focus on production (e.g. NFA) also see the need to involve consumption. However, it is clear that it is done without much knowledge of the field. A similar criticism can easily be brought against several major interdisciplinary projects. The professional level of ongoing projects about consumption is lower than for production and disposal. This is in itself not surprising. Since consumption is a small “policy area” there are few good statistics. It is also a methodologically complicated field because what people do (which is most important in an environmental discussion) is more difficult to identify than what they say and think. Thus we have huge gaps in knowledge on important issues;

how many clothes do different consumers own, how old are they, why has the number grown so quickly? How can development be turned from many and bad, to few and good?

5.3.3 *Little knowledge on activities that do not involve money*

There is a reason for the discrepancies in status between sharing and reuse of textiles within and outside market. The market e.g. for used textiles is easier to investigate than inheritance, sharing and gifting. But what little we know about these flows, is both that the private sharing forms are far larger in volume and that they also have a greater environmental potential. The same of course goes for private recycling, repair and reuse (Laitala and Boks 2012). Unfortunately no comparative studies between the Nordic countries have been made within these areas.

Replace

The field has major shortcomings in knowledge. The important questions are not even formulated properly. For example, it would be important to see production and consumption in context in order to get progress in the Replace area. Discussions about waste must be changed from the reuse and recycling to prevention. The interest in such discourse is growing. Within manufacturing and sales-oriented groups, through interest in new BMs and within the academic field, through the term prosumer. The lack of knowledge can also be identified in the initiatives, through a low level of maturity and high level of innovation.

Reduce

Here there has been done a lot of good mapping and the level of knowledge is far better than for the other three Rs. What seems weakest is what should actually be done. Good policy instruments are developed, such as raw material fee, recycling certificates, Tax on hazardous chemicals etc, but have not been utilized due to lack of political will/power. Much of the effort to minimize inputs in the value chain is about changing conditions in countries far from us, often with problems of corruption and instable political systems. Our desire for control has therefore little effect. It is probably through strong international regulation that major improvements can be achieved, but this is not very likely to happen. This research field is represented in the initiatives, but does not have a strong position. Alternatively, one can imagine a stronger national legislation in relation to the products. The knowledge about these

conditions requires cooperation between lawyers, environmental scientists and textile researchers.

There is also little knowledge about the effect different angles within Reduce will have in other areas, especially Replace. Improved utilization of textile waste is a good thing, but not if it adds to the amount of waste. Initiatives within Reduce have the opposite profile of Replace, with high mature and low innovation. To go forward requires a solid anchoring of projects, and that knowledge is also implemented into solutions, actions and is seen more in the context of other fields.

Redirect

The knowledge level within Redirect is very different from Reduce. The number of initiatives also shows that of the nine initiatives five are Finnish. Common to many of them is that they include the development of a local fiber. Some initiatives are partly focused on the entire value chain with growth or development of a fiber as a primary focus. They are also less oriented towards environmental issues. These initiatives therefore do not cover the most central issues in Redirect: How can the work of local value chains contribute in terms of reversing the Fast fashion trend towards fewer, better clothes in the Nordic countries? How can locally produced textiles and apparel be an alternative to a global industry with significant environmental challenges? To answer this type of question requires that multiple value chains (and value chains in several Nordic countries) are compared and studied up against other supply chains. Comparing to food is perhaps the most relevant, as here the local contributed to an increased focus on quality and the environment (Vittersø and Jervell, 2011; Terragni, Torjusen and Vittersø, 2009). An important difference between food and clothing is that the global is a given as the norm for textile production, while our countries have a national policy about self-sufficiency in terms of food. The fact that the change in food has been so positive, both for consumers, businesses and politics is a good starting point for a similar work for textiles. There is also a good knowledge base (in food) to build on. We therefore need research on the relationship between local production and environment, and between the local consumption in the local production. This is also closely connected with the knowledge requirements in Rethink.

Rethink

Only three initiatives are categorized in this region and it goes without saying that knowledge about the issues raised here are poorly developed. But this is also an area that is part of a trend toward fewer, better textiles (Fletcher and Tham, 2015). Better clothes are precisely those that are better suited to those who will use them. Nordic strength is that we are a democratic and inclusive society. To get a better grip about what great fabrics ARE there is a need for basic research. How is the supply of textiles in relation to the population's composition? What are good items found in a Nordic clothing culture? How can the future of textiles both take care of the environment and users' health and quality of life? Important fields to enter are groups with special needs such as the elderly, the sick, the disabled, children, obese, etc. There is also reason to believe that the focus on better fabrics for some smaller groups could contribute to improvements for all. If we look back at what has happened in the food sector, with the focus on health, tradition, local, slow and tasteful (Bugge, 2012; Vittersø and Schjøll, 2010) – this has certainly been linked successfully. And quality is thus understood as something multifaceted. A similar focus for research and industry in the textile sector is clearly lacking. Work on these issues will turn the debate from focusing on the negative to the positive aspects of Nordic textile culture. This will also involve more actors than only those who define that they work within sustainability.

5.3.4 Suggestions for further research

Overriding themes

- What could define a Nordic clothing culture?
- What advantages do we have that could bring us out of the negative spiral in the textile sector with increased volumes, declining prices, with low and decreasing technical, use and aesthetic qualities?

Replace

- What is quality and how can it be brought forward in product marketing, labeling and consumer knowledge?
- Which political, market and educational tools are necessary in order to skew the textile sector towards focusing on quality?
- How can consumers be informed about the use properties of clothing in acquisition situations (such as expected lifespan)?

- What measures are available for waste prevention and how can they be implemented more effectively.
- What traditional and new forms of sharing, alongside prosumption (repair, alteration, adjustment, home production etc.) are available?
- What sort of potential do they have for environmental gain and how can they be stimulated?

Reduce

- To what degree do we find private reuse and recycling, and how can these activities be stimulated?
- A series of policy tools have been developed with the aim to reduce environmental impacts (eco-labels, restricted chemical lists, EPR, raw material fees). How do they influence the amount of textiles and how can they be implemented quicker via policy measures?
- How can use be incorporated as a criterion in comparisons between products' environmental impacts?
- Why not forbid the import of goods that cannot guarantee a safe production, even if the products do not test positive for restricted substances?
- Looking at the increased use of chemicals and actual benefits – are there alternatives that address the same problems with lower or no environmental impact?
- New (and growing) problem-areas: odor control, nano-silver, micro-plastics, etc. How do we address these issues?

Redirect

- How can local value chains contribute to sustainable development and green growth?
- How can locally produced textiles and apparel become an environmental alternative? The question addresses both change in relation to production and consumption.

Rethink

- How can the future of Nordic textiles take care of the environment and users' health, along with quality of life?
- How can clothes encourage a development for a democratic, diverse and inclusive society?

5.4 Nordic positions of strength (C)

We will now describe the strengths and weaknesses of the Nordic fashion and textile sector. This will mainly be a description of today's situation with some historic background. The report therefore starts out with an attempt to both define the sector and give an historic overview, before going into the strengths and weaknesses. At the end of the chapter, the latter have been summarized.

5.4.1 *The Nordic textile sector*

A definition of the textile sector is not unambiguous and our findings are dependent on the scope and limitations that we choose for our study. Our findings are also dependent on what we are comparing the Nordic countries with; to southern Europe? To the Baltics? To the UK (because of their many leading initiatives)? To the EU? However, we have chosen to highlight our common values without defining who or what we are comparing ourselves to, for example: A democratic and inclusive culture and a concern for the environment. As pointed out, Rethink is a region that focuses on this, but where there are few initiatives, in spite of a high potential for transformative change.

In Norway, statistics include fishing nets and these can actually be recycled into synthetic materials (Aquafile Group, 2014). Iceland, Denmark, Finland and Sweden also have a substantial fishing industry. If we mainly define the sector as textiles, the large fur trade in Denmark cannot be included. If we mainly define the sector as fashion, we need to include fur and accessories. Addressing the question of strengths and weaknesses include many aspects of clothing and textiles: Sourcing, production, marketing, transport, how the market is organized, power structures and availability of relevant products. Consumption includes both what people have, what they use, level of knowledge, status of repair, reuse, recycling and waste. As far as we know, there have been no comparative studies in the Nordic region identifying all these issues and questions.

Textiles have a strong tradition in the Nordic region, and were an important item in trade in Viking times. There were strict laws governing textile trade, who had access to trade and to materials. "Vadmel" was a currency as well as being a woolen material, which gives an indication of the value textiles held historically (Klepp and Tobiasson 2013). The textile industry was established in the Nordic region at the tail-end of the 19th century, as the strong-hold the British industry had held on production machines was eased up. In areas where there had already been

home-industry based on raw-materials such as wool and linen; and where other natural resources like water for power were readily available – the textile industry developed between 1880 and the early 20th century (ibid.). In Denmark, Herning and Ikast were the main centers; in Sweden Borås, in Norway the Bergen and Møre areas became centers for many textile mills. Because of toll-barriers the local production of textiles and apparel flourished, along with access to the local raw materials, but also some cheap imported, such as cotton.

5.4.2 A global change

In February 1974 US president Nixon and Chinese Chairman Mao signed an agreement that would have a profound impact on the textiles and imports, as the US opened up for cheaper products Made in China. Besides lowering tolls, transport between the Far East and Europe became cheaper and faster, opening up for Nordic shipping companies like Maersk – and in Europe and the US strict regulations on pollution came in place. This led to so-called out-sourcing, and became the governmental policy of the region. In the 1980s and 1990s fewer and fewer of the Nordic brands had their actual production within Nordic region, and many predicted this would be the down-fall of the industry. However, the Danish and the Swedish industries were quick to turn around and became global players with focus on design and price-points. The so-called “hippie chic” trend, which followed minimalism and championed by supermodel Helena Christensen, was the basis for the Danish success-story, giving rise to many companies and by 2006 textiles and apparel was Denmark’s fourth biggest export (Eicher, 2010).

As prices have risen in China, the Nordic companies have moved to even cheaper production countries with little legislation on waste and labor; such as India, Bangladesh, Vietnam and now Myanmar. The result is that it is legal to import goods to the Nordic region that would be forbidden to produce here, based on chemical inputs and labor issues. Today’s global fashion and apparel industry employs 25 million people worldwide (Fletcher and Tham, 2015). As most of the production takes place in low-cost countries, it is design, buying, selling, transport, marketing and disposal that takes place in the Nordic region. And it is by far a region where consumption has a large impact, as opposed to production.

Here are some numbers that illustrate consumption. The Norwegian consumers use almost double the amount of money for clothing and shoes compared to the other Nordic countries. This may be related to higher consumption of sports clothing (Klepp and Skuland, 2013), which

is more expensive than regular clothing, but can also be related to higher volumes of textiles.

Table 6: Final consumption expenditure on clothing and footwear per capita in 2011 in EUR

Country	Consumption per capita in EUR
Norway	2,315
Iceland	1,112
Denmark	9,41
Sweden	9,06
Finland	9,06

(Nordic statistics, 2014b).

Today's textile and fashion industry in the region is dominated by some large actors, such as H&M, Ikea, Varner, Bestseller and IC Company, companies who sell mainly cheap products and high volumes. Ikea, even though it is a furniture company, is the biggest purveyor of textiles in the world. Most companies are so-called SMEs, with some operating with a single employee, and there is variation from luxury to cheap chic, both in textiles and apparel. The total number of companies in the region is hard to ascertain, but Danish Fashion and Textile has 340 member companies. According to Finatex (2013), a total of 15,807 are employed in the textile and apparel sector in Denmark, Sweden and Finland. This number has been declining steadily, as the industry is more design- and marketing-driven, than production and technical skill-based. If we take the Finnish work-force as a pointer for the region, it is clear that the decline in the textile sector is much sharper than in the apparel sector, but the consumption of apparel is rising more steadily than that of textiles for the home-sector, and out-performs by far the latter.

A Swedish report presented by Tillväxtverket (Nielsén and Sternö, 2013) on the fashion sector, claims that 54,200 work in the fashion sector alone in Sweden. They count the retail sector in this number, but it is unclear why this number is substantially higher than the EU numbers cited by Finatex.

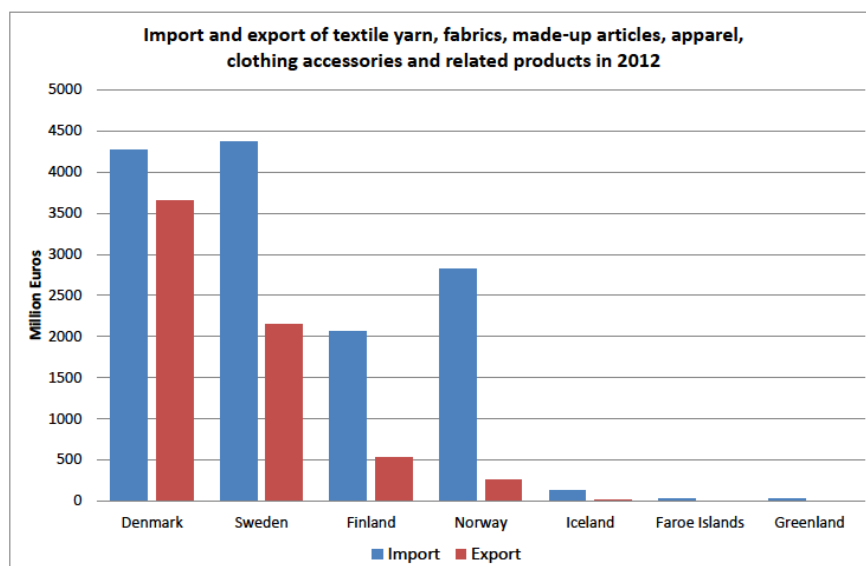
Table 7 gives the import and export values for textiles and clothing from the Nordic countries. It shows that Denmark is the largest in export on both of the categories, followed by Sweden. All countries' import value is higher than the export value. Figure 18 shows the same data in simplified form.

Table 7: Import and export of textiles and clothing from the Nordic countries in 2012.
Values in 1,000 Euros

Country	Textile yarn, fabrics, made-up articles and related products		Articles of apparel and clothing accessories	
	Import EUR 1,000	Export EUR 1,000	Import EUR 1,000	Export EUR 1,000
Denmark	970,453	832,500	3,305,409	2,823,788
Greenland	26,096	7	3,364	0.2
Faroe Islands	11,297	2,138	15,464	89
Finland	568,446	198,132	1,489,253	322,942
Iceland	38,449	7,635	92,030	1,821
Norway	744,488	161,529	2,079,800	97,113
Sweden	1,079,736	685,573	3,285,677	1,464,357

(Nordic statistics, 2014a).

Figure 18: Import and export of textile yarn, fabrics, made-up articles, apparel, clothing accessories and related products in 2012 in million EUR (Nordic statistics, 2014a)



As a sector, the textile and apparel industry therefore includes, or can include, fishing nets, supplies for the medical sector, sports clothing, high quality woven fabrics, as well as fast fashion, but as discussed earlier it has not been decided where a potential roadmap for the region will draw a line – so describing all the trends within the sector as a whole, is beyond the scope of this report. However, for a Nordic Roadmap a more in-depth analysis of the sector as a whole, could give valuable insights.

5.4.3 A local industry?

For the few companies who still have production in the region, the lack of technical skills is defined as one of the main problems – as the only educational institutions in the region with this type of education are found in Sweden (Borås) and Finland (Tampere). This also influences the many companies sourcing practices, as lack technical know-how is identified as a main source of strife between purchasers and production units in the Far East by the Norwegian Initiative for Ethical Trade (IEH). A recent meeting held in Copenhagen as a joint cooperation between the MISTRA Future Fashion Project and Copenhagen School of Design and Technology (KEA) to look into Manufacture Copenhagen (or Scandinavia), high-lighted the former issue as a major stumbling-block.

In this report we have identified unexplored areas and further research but also analyzed some of the strengths and weaknesses on a more general level of the various textile initiatives and the potential they hold for a Nordic Roadmap that can make a difference. To identify Nordic positions of strength in the fashion and textile sector, many of the same conclusions are relevant.

5.4.4 Looking at consumers

In relation to consumers, we see that the level of knowledge on textile technical issues is low, but these new forums and platforms can open up for competence building. The level of knowledge on environmental issues and what the consumer can do proactively is also low, as the volume of consumption and laundering frequency are core issues that outpace the incremental improvements made by the industry. This has been described by SIFO in their report for WP4 B. The lack of labeling and information on textiles and apparel is an over-riding problem in the entire region. However, one could also argue that the consumers assume that what they buy is safe (free of hazardous chemicals), as the level of “shock” registered among consumers when media writes about these issues is fairly high (Klepp and Tobiasson, 2014). The level of trust in government, how we expect to be protected and our level of trust among each other, is high in this region.

The main strength one could argue, is that as a region we are extremely good at dressing for movement and for temperature fluctuations/cold. All the bicyclists in Copenhagen and the Oslo-dwellers running to catch the tram – foreigners are impressed by how practical and functional still can be good looking. The Norwegian Haute Couture designer Per Spook took the idea of this type of practicality to Paris (low heels, comfortable knit

clothes in layers) and thereby changed fashion from constraining women to giving them a new freedom of movement (Klepp and Tobiasson, 2013). The same was, according to Berg Encyclopedia, the secret behind the success of the Danish brands in the late 1990s.

But this goes even further back, with work done mostly in Sweden, to develop better children's clothing around the 1950's. The focus was on "the good childhood", how to dress for outdoor activity and movement (Boalt and Carlsson, 1949). In Finland, all newborn babies receive the offer of a "starting pack" (or a cash rebate) with a full set of clothes, a system which started in the 1930s in order to ensure that all children would "get the same start in life". The colors are uni-sex, so the clothes can be inherited (Lee, 2013). In Norway, all military personnel is issued wool undergarments (also a wool bra for women) to ensure maximum comfort for activity in all climates (Klepp and Tobiasson, 2013). Arguably, this type of thinking could now be replicated in new ways; exporting not only apparel, but a way of life. For Per Spook this also was about gender equality and emancipation. In view of the discussion how a global fashion continuum is limiting our freedom of choice and our access to good clothes, this could be interesting to study further: Does a Nordic sensibility challenge a power structure that limits our choices for good clothes in international fashion?

5.4.5 Handicrafts and Nordic value-chains

We also have strong handicraft traditions, interestingly enough the CEO of the Swedish Fashion Council just left to head Handarbetets Vänner in Sweden, and Norway's Artisan and Handicrafts organization has just been given a large grant to work with children and youth – as part of the push for integrating more knowledge on crafts in Norwegian schools. Using these craft traditions and the know-how embedded in these, can give the region an added value. Combining indigenous raw materials and value-chains (specifically artisan businesses) with modernized design, could give rise to local opportunities both for the tourist trade and for the export market. The industry that is left within the textile sector has already made the adjustments to strict environmental regulations.

This means that a shift to more local sourcing automatically would give benefits both for Redirect and Reduce. If the price-factor of better quality/slower turn-over is taken into account, Replace could also be a benefit. Concrete examples are KLM's decision to use Norwegian wool in their carpets as they reduce the need to replace carpets by 1/3 based on the durability and crimp in the wool. Another is Bodø Airport where the

airport recently was refurbished, except for the chairs – upholstered with local wool – after 30 years in use they were still pristine. These are examples with wide implications for public procurement, among other issues. It has been interesting to note that at the many meetings where the Nordic industry, politicians and NGOs have discussed a way forward, Nordic value-chains and raw materials have been raised as a theme. Linen, wool, cellulose from wood pulp, hemp, nettle and fur have all been discussed – and the first meeting on Manufacture Copenhagen/Scandinavia has been held in Copenhagen autumn 2014 (inspired by Manufacture US/Manufacture New York).¹²

5.4.6 Different focus in the Nordic countries

There is a lot of activity in the recycling and reuse area (mainly in the formal market, despite that recycling industry is small in the Nordic region, Swopping has also been addressed, as well as reselling); especially in Sweden – but also in Finland and Denmark, and also under-pinned by the three initiatives from NAG (Reduce). Not all have been included in the mapping as they are driven by either one company or by an international push. The main focus has been on pecuniary processes, as these are easier to measure; the informal markets are harder to track and evaluate and have less political attention, though SIFO has done some work in this area (Laitala, 2014). The aim of perhaps having a full recycling plant in the Nordic region is still in the blue, and the materials and clothes collected are for the most part exported.

As we in the Nordic region have been model citizens in recycling deposit bottles, cans and paper – and waste is burned for energy rather than deposited to landfill (Laitala *et al.* 2012)– the idea of a green and circular economy has been gaining momentum in the public debate. Several factors have contributed to this focus. In the Nordic region charities have dominated the textile collection arena and had – along with flea markets – a monopoly. However, once focus on textile waste as a resource surfaced– the discussion escalated on how disreputable actors had hampered textile collection in the UK, possible ethical issues in connection with sending used textiles and apparel to Africa, and the feasibility of actually respinning new yarns from textile waste – along with an on-going discussion on EPR in the Nordic region (led by Sweden). As

¹² http://norwegianfashioninstitute.com/#news_1989

H&M and other major retailers joined forces with I:Collect and Re:newcell announced they planned going to pilot-scale on recycling cellulosic fibers – the optimism about the circular textile flows seemingly grew. This has also been embraced as a main focus area by MISTRA, and of the LAUNCH Nordic projects picked for the next level are several with circular loop approaches.¹³

That the different countries do have different focus areas, can be defined as a strength. When we look at the differences between the countries, it seems that Denmark has a strong political backing to focus on textiles as a green growth opportunity – but also Natural Capital Accounting (Høst-Madsen *et al.* 2014), while Sweden has its political focus on chemicals in textiles and extended producer responsibility (EPR). Finland and Sweden both have focus on technical solutions, specifically for cellulose-based fibers and recycling, and have government support on these focus areas. Iceland and Norway have focus on the same raw material: Wool, and are both struggling with low value of indigenous breeds' wool and value-chains that have been broken – however there is little political backing for fixing or re-invigorating this troubled value-chain. Norway also has had focus on consumers and consumption; but at a political level there has been little acknowledgment of the topic. If the different countries in the region can build on each others' strengths and align themselves, this could further enhance the lead of the region, based on the synergies.

5.4.7 High international standing

Nordic companies, several Nordic initiatives and the region as a whole, have a high standing internationally, and are perceived as being concerned about the environment and ethics. H&M may get “hung out to dry” on occasion, but all in all this region, the co-operation platforms and engaged companies are (unfairly or not) perceived as responsible. This is also something to be harnessed, and has already been done so in the Nordic Cuisine project (Nordic Council of Ministers, 2008).

There is little documentation or research on these different approaches and on the different policy tools in the Nordic region. However, there are forums where the Nordic stakeholders and policy makers meet

¹³ Four of nine initiatives picked by LAUNCH are circular economy driven: 1) PURE WASTE (Finland), 2) RE:NEWCELL (Sweden), 3) THE EXTENDED CLOSED LOOP (Germany, Student Innovator), and 4) VIGGA.US (Denmark). <http://www.launch.org/nordic>

to discuss potential ways forward. Some have been facilitated by NAG, others by NFA/NICE and/or SFA, but also Copenhagen Business School (CBS), MISTRA, Copenhagen School of Design and Technology (KEA) and LAUNCH Nordic have offered a setting for bringing forward concerns and challenges facing the Nordic fashion and textile sector. There are clearly many engaged stake-holders, and several themes have emerged at these meetings and workshops.

The ability to cooperate as a region, with a basis in the existing networks, is a strength. However, some of these networks also have discovered that there are rivalries among national organizations and NGOs. In the mapping we see some initiatives overlapping and the question arises: Why? Is this an effective use of time and money? Could cooperation or coordination be better? The cooperation between the three Scandinavian countries (Norway, Sweden and Denmark) is perhaps more effective, because of language and proximity, than the Nordic cooperation, where language becomes an issue. We see some close cooperation across borders, perhaps more than close cooperation inside the borders, as we see with NFA, LAUNCH Nordic, MISTRA, etc. Where cooperation arises, it is often based on a common interest in one aspect, one raw material or one specific problem. Thus MISTRA has divided its many projects into separate working groups. NFA is perhaps the one organization that tries to address all stages in the value-chain – and all Nordic countries – under one umbrella.

In relation to language, there is a question of semantics and specifically related to the expression sustainable fashion. Sustainability as a concept was coined by former Norwegian Prime Minister Gro Harlem Brundtland, and sustainable development is the kind of development that meets the needs of the present without compromising the ability of future generations to meet their own needs (World Commission on Environment and Development, 1987). As almost all fashion and textile production somehow depletes resources, many critics have pointed to this contradiction in terms. For in spite of a 30% resource efficiency increase over the last 30 years (Worldwatch Institute 2011:82), high levels of consumption have overshadowed this reduction. However, we would like to point out one example of carbon sequestration which could make garments carbon-positive. The project in question is Fibershed, where Rebecca Burgess through planning a sun-powered scouring mill, yarn, knit and weaving factory in California based on local wool and returning effluent as fertilizer to the soil, will be able to sequester carbon (Fibershed, 2013). This feeds into new data on wool's environmental profile in LCAs and other assessments, an area where Norway has

spent a lot of time to show the fallacy of wool's current status; but also of the short-comings of industrial LCAs (Kviseth and Tobiasson, 2011).

5.4.8 Concrete actions

When it comes to identifying the most concrete actions so far in the area of sustainability, for this region: Copenhagen Fashion Summit, the Fabric Source, LAUNCH Nordic and MISTRA Future Fashion – along with *The Nordic textile reuse and recycling commitment, 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* – are perhaps the most visible and pro-active Nordic co-operations. There has also been cooperation on restricted chemical lists; some are open source others are not. This brings up another issue of knowledge and tool sharing. For some organizations and cooperative endeavours, the knowledge or tools are business opportunities. While Norway's IEH (Ethical Trading Initiative Norway) and the Danish Ethical Trade Initiative cooperate in the Nordic Ethical Trading Framework, IEH and the British Ethical Trade organization has developed a buyer's guide which is only available for members. There is talk that the tool perhaps will be made available to others at a price. Some of the findings in this tool are important for the entire sector to work with, and should therefore be open source. The web-tool nicefashion.org is, in contrast, open source and is used internationally. It is also a little unclear (as this was not part of the mapping) how closely NGOs, government, researcher, retailers, other stakeholders and industry work together in each country (aside from the cooperation in the Nordic networks). The Textile Panel (NO), which facilitates informal meetings for the industry, students, designers and other stakeholders has had a steering committee representing the industrial organization, the retail organization, the creative industries organization, SIFO, Norway's EPA and EcoLabel Norway. Seed-money has enabled the Textile Panel's work and network with the newly formed business network group. As the core groups involved already have been presented with the four Rs and the idea of a Nordic Network, it has been agreed to find ways to implement the Rs – depending on how they can make them part of their business models. If the other Nordic countries could have similar "working-groups", there could be an effective structure for cooperation. This does, however, expose a need for more seed-money to facilitate this type of cooperation. In Norway, there is specific funding-possibility for business-networks – but there is a time limit and a monetary limit.

Some issues were very much in focus at the first meeting of the business network: The dire need for better knowledge on textiles (quality, labels of origin, technical properties, environmental impacts, care and use, etc.) (Tobiasson, 2014). But the companies also expressed a very keen interest in the actual mapping, to get a much better picture of the Nordic sector. This curiosity for the region and initiatives is a Nordic strength, which we can hope is duplicated in the other countries!

5.4.9 Cooperating and social networks

Our spirit of cooperation towards a common good is another Nordic strength, as lifting together towards bettering a situation is part of our heritage. This could be the basis of more consumer/citizen action focus (swopping, repairing, etc.) in the vein currently being described and researched by Professor Kate Fletcher in her projects Craft of Use, Local Wisdom and now Fashion Ecologies – exploring the local in a completely new perspective through the inter-connectedness of local competences and materials (NFI, 2014b).

The #GooDeed app project which will be presented in Copenhagen this fall to the Nordic Council of Ministers, tries to integrate another Nordic strength: Our ICT competence and uptake of social networks and new technology is a common trait – Facebook, Instagram, Twitter and Pinterest have a large number of users in the region. Trendsales (which originally started in Denmark) has spread quickly, and shows how social networks are easily utilized in the Nordic region, and this should be further explored.

In this regard, we need to agree on what makes a difference, and be bold. The world of textiles and apparel has changed drastically several times through history, and the current destructive business-model of consuming volume and bad quality is not set in stone. The aim 40 years ago was to furnish the Western world with cheap products without taking into account the true cost, and once we have seen this cost – we need a paradigm change. The systems and even paradigms we live with are created by humans, and so we can create other systems and paradigms that are better suited for our present and future well-being, and that of fellow humans and fellow species (Tham, 2015).

5.4.10 Conclusions

- Defining the sector number-wise is next to impossible because of diverging statistical criteria.
- Defining strengths and weaknesses needs to be defined as opposed to what/whom.
- The consumer has a low level of know-how about textiles and apparel, related to materials, quality and care.
- The Nordic region's main strength is an ease of dressing for movement and the out-door elements.
- Handicraft traditions are strong, however they may be disappearing.
- There is some renewal of interest in more local sourcing and local fibers.
- Reuse and recycling are the main areas of focus, in spite of lack of a recycling industry and reuse marked.
- The Nordic region has a high standing as being ethically and environmentally concerned internationally.
- In spite of language and cultural differences, we have a tradition of cooperating.
- Our grasp of ICT, use of social networks and uptake of electronic tools and apps, have not been used to their full potential to change consumer behavior.
- Inclusion is an important under-pinning for policies, which goes to our sense of democracy and participation in the public sphere.

5.5 Synergies between policy areas (D)

The aim of this task is to identify potential synergies between waste, chemicals and sustainability policy. The evaluation considers the potential for synergies between the policy areas, and then identifies the extent to which these synergies are currently being realised and which aren't. The overall conclusion is, that the Nordic countries have a great opportunity to create success stories, which they together can utilise for putting pressure on the EU-policy processes. Currently, policies for the textile area are to a large extent missing and where synergies are possible, they are not fully utilized.

Due to the limited time-frame this task is a fairly broad assessment, which makes use of the policy elements of the initiatives plus the report author's wider knowledge of sustainability and waste policy. The

evaluation focuses on some key examples of synergies and how these could be realized.

There is a wider perspective to be considered for policy not included in this report on that there are possible synergies also with other areas of e.g. policies such as economic-, aid-, health- and industrial production policy. This was however outside the scope of this study. This study describes the connection between relevant policy areas and the focus areas chosen in the initiative mapping and gives examples for labeling and ecodesign where policy areas could work together towards a common goal.

In general most policies have been related to the area of Replace. But shifting focus to fewer and better textiles has the potential to have large impacts on the sector's environmental footprint. An aim could be to shift the focus from trying to solve the environmental issues of textiles in waste legislation and instead focus on sustainability in the production- and use phases. Where environmentally preferred production could take place locally this could enable both a more sustainable textile sector and promote green jobs in the Nordic countries.

5.5.1 Replace

23 initiatives have been identified within the theme of *Replace*, of which three are on the Nordic level.

Sustainable business models

The *Waste Framework Directive* and the national and local *waste prevention programmes* can be connected to the area of *sustainable business models* that rely on increased quality and durability of textiles. Although the waste hierarchy already supports these types of initiatives, increased focus could be given to businesses which work with these activities.

The European *circular economy package*, which was released in July 2014 directly targets *sustainable business models*. A key document within the package is *The Green Action Plan for SMEs*. This plan contains activities such as e.g. enhancing new business models for resource efficiency and energy efficiency in SMEs via the LIFE program, addressing systemic barriers to [...] value chain collaboration and business creation and cooperation, by facilitating the creation of service business models and the reporting obligations and lighten obligations affecting SMEs in general. Small entrepreneurial initiatives such as Danish Share Your Closet could potentially benefit from these types of initiatives.

The *Ecodesign criteria* could also be expanded from pure energy requirements to also address reparability (the ability and ease of a product to be repaired during its life cycle) and the quality (and thus also the

technical lifetime) of textiles. An example is the Swedish initiative *Textilverkstan*, that tries to engage people to repair, but is highly dependent on higher quality and reparability of the virgin products.

With respect to repair services, business models relying on this activity would benefit from *reduced VAT on repair services*. Today there are already a number of examples in the EU member states and *VAT reductions for repair shoes and leather goods as well as clothing and household linen* can be observed in Greece, Ireland, Luxembourg, Malta, Netherlands, Poland, Slovenia and Finland (European Commission, 2014a).

Sustainable product design

Within the area of *sustainable product design*, it is obvious that there is a clear synergy related to the *ecodesign criteria*, which have the positively to be expanded from pure energy requirements to also addressing reparability and improvements on the initial quality of textiles.

Current labels are traditionally most concerned with chemical content. *Environmental labeling* could become more relevant for sustainable product design by improving on demands for design of quality and durability. In the same way, the national or local *waste prevention programmes* can (and might in some cases already) support higher quality and durability of textile products. The waste preventing effect is in the end however directly dependent on consumer behavior.

Consumer/citizen behavior

A shift from numerous and low quality textiles to fewer, better and more expensive requires behavior change, which requires both the ability and willingness of consumers. Considering that there is already a desire among consumers for better textiles, it is the ability efforts must be concentrated on. This can be split into three, 1. technical skills, 2. general knowledge and 3. access to information about products. Point 3 is a field where there is great overlap between environmental and consumer policy. Stronger rights surrounding the products, claims and clearer rules for product life-span are important policy areas. We can imagine guarantee, labeling the overall lifetime, or even labeling of specific properties such as the degree of pilling, fading, and more. A closer monitoring of marketing legislation could also have an effect, with greater emphasis on the documentation of alleged properties. For points 1 and 2, the general policy knowledge has significance. The public schools are the main arena for learning, linking environment for handicrafts, one will be able to secure basic skills such as basic repair techniques. A better integration of textiles in science education will also make a positive contribution to the overall knowledge level and in relation to laundry and care. In addition

to ensuring basic skills through the school system, there should be support for organizations working with adult education, crafts and hobby activities in order to raise the level of knowledge for anyone. This applies both to the individual production techniques (sewing, knitting, weaving, etc.) but also redesign, repair, use of residual materials. More knowledge and home production will help to raise the level of knowledge and thus make it easier for consumers to recognize quality in the market.

5.5.2 Reduce

Reduce is by far the most common area for initiatives in both the countries and the region as a whole. 61 initiatives in total have been identified, and of these eight have been taken on the Nordic level.

Reuse and recycling and Producer corporate social responsibility

For the area of reuse and recycling there are still few policy instruments that are directly aimed at textiles. Overarching waste policy such as the waste hierarchy in the waste framework directive (European Parliament and the Council, 2008/98/EC) is valid for textiles but additional incentives are lacking at present. The communication “Towards a circular economy” (European Commission, 2014b) similarly addresses that:

“The Commission will: further analyse the major market and governance failures which hamper the avoidance and reuse of material waste, taking account of the heterogeneity of material types and their uses, to contribute to an enabling policy framework for resource efficiency at EU level.”

But then when the document comes to specifics, it continues the path of focus on recycling plastics, metals, glass, paper and cardboard (EC, 2014b; p9) which is interesting considering that the impact on global warming from textiles is easily more than double that of plastic packaging.¹⁴ A clear connection to hazardous chemicals could be argued for since with the very limited effect of Reach and other legislation on chemicals in textiles, recycling of textiles can be considered questionable from a toxicity standpoint.

Work on better policy is being performed in initiatives such as *Mistra Future Fashion* and *A Nordic Strategy for collection, sorting, reuse and*

¹⁴ Example of Sweden 2013 where 186,000 tonnes of plastics with approximately 4 tonnes of carbon dioxide per tonne (over the complete lifecycle) compares to 121,000 tonnes of textiles with approximately 15 tonnes of carbon dioxide per tonne.

recycling of textiles but take back programmes are only managed by individual companies in initiatives such as the ones from Bestseller, H&M and Hemptex. These CSR related activities could be expanded by increased demands of cooperation related to used textiles, where the Textiles for recycling initiative is a good example of cooperation. EPR systems on textile could clearly increase collection and subsequent re-use and recycling of textiles, but will not likely impact textile production and consumption.

Low impact production chains and sustainable private and public procurement

Improved recycling and low impact production chains are still in the lower ends or maturity and have limited support and incentives from a policy perspective. An initiative such as ForTex Innventia are more aimed at finding a use for surplus pulp mills than actually focusing on creating a more sustainable fiber which has no clear advantage other than the fact that cotton has become more expensive. Environmental labeling such as the Nordic Swan and the EU Eco-label are not to a large extent used by the textile industry compared to e.g. for detergents. In addition, the lack of a clear definition for organic cotton and its minimum content in products makes the choice for consumers very difficult. Initiatives such as the Potential for green textile sourcing from Tirupur could be further developed and built upon (Valeur 2013).

An important first step for more sustainable textiles is to use the purchasing power of governments to make use of green procurements and reduce the barriers of procuring reused and recycled textile. Policy both for chemicals (Reach and national legislation) and ecodesign criteria (EU ecodesign directive) could then work together to make the mainstream textile more sustainable from both an energy and a chemical perspective. If given special attention to quality aspects this could also strengthen all current and future initiatives related to reuse or shared consumption.

As part of the ten product groups included in the EU target for 50% green public procurement in 2020, EU has set up two sets of public procurement criteria for textiles. More specifically the criteria cover both apparel and accessories, home textiles as well as fibers, yarn and piece goods which are used for the product categories mentioned above. The criteria includes consideration of use of pesticides and chemicals, organic production, content of recycled fibers and more. Denmark is working both nationally and in municipalities with GPP of textiles (Statsindkøb, 2014; Udbudsportalen, 2013).

Sustainable private and public use

Current policy for a more sustainable private and public use may even act against longer life of textiles where the Ecodesign directive and negative energy performance labeling exclusively focus on energy performance of washing machines and dryers. However, amongst other things, the EU GPP criteria focus on the products ability to maintain the shape and color after washing and wearing.

5.5.3 Redirect

The initiatives under *re-direct* are not immediately targeted by any policy areas. The mapping of national and Nordic initiatives also showed, that the idea of encouraging and facilitating local value chains is also only rarely being initiated in the countries (7 initiatives) and in the region as a whole (2 initiatives). This could indicate that the area is currently not of great focus, although projects like e.g. *VikingGold* and *Manufacture Copenhagen/Scandinavia* are emerging. Redirect activities could be supported by certain types of trade policies, but this is however unlikely to happen.¹⁵ Instead, (Nordic) *labeling schemes* on country of origin could be developed in order to make it possible for the consumers to make local choices. Locally produced textiles may then due to stronger environmental regulations in the Nordic region compared to e.g. China have less environmental impact. The greatest potential of Redirect lies within the indirect impacts that can be achieved through focusing on the raw materials, quality and tradition.

5.5.4 Rethink

There are only three initiatives under the area of *rethinking* textiles as we know them, and no policy areas have been identified to target this area either. The category is very much about how and with what purpose in mind, that the design of textile products is made. With respect to (more) ethical marketing, the Danish *Ethical Charter* partly addresses the quest for an ethical fashion industry, but any direct regulation has not been identified.

¹⁵ Although there are examples of regulating the content of local food supply, this is not expected to happen to textiles. Strong lobbying and national security interests are closely connected to national food supplies, whereas textile production has been left for particularly eastern countries for decades.

5.5.5 Evaluate

Statistics of textile flows and use

From both a collection and an evaluation standpoint policy demanding separate collection textiles are key both to increase the possibilities for reuse, recycling, use of recycled fiber in production of new fiber and not the least to better be able to follow the results of other policies introduced. The Nordic textile reuse and recycling commitment is an initiative that could be expanded to really enable consumers to participate in separate collection as a clear connection to consumer/citizen behavior. It is also crucial that informal reuse is considered not to greenwash by shifting informal reuse to formal reuse.

Lifecycle assessment and Nordic textile companies' environmental reporting

There are still very few comprehensive life cycle assessments made on the different stages of textile production and the level of detail in environmental reporting often consist of vague statements. The initiative Grønn Hverdag tried to put the sustainability of Norwegian companies into comparable figures based on a survey, but it proved too difficult to accomplish. It is generally very difficult to find a level where the LCA-information presented is both comparable, fair and reasonably near the truth. This is especially true for the textile industry where supply chains are complex and continuously shifting. Future policy that might influence this area is the Product Environmental Footprint (PEF) system, but it is long from implementation. The Higg index, created by the Sustainable Apparel Coalition, possibly in cooperation with the Nordic Swan, may also play a major role but might have even longer to implementation.

Policy synergies examples

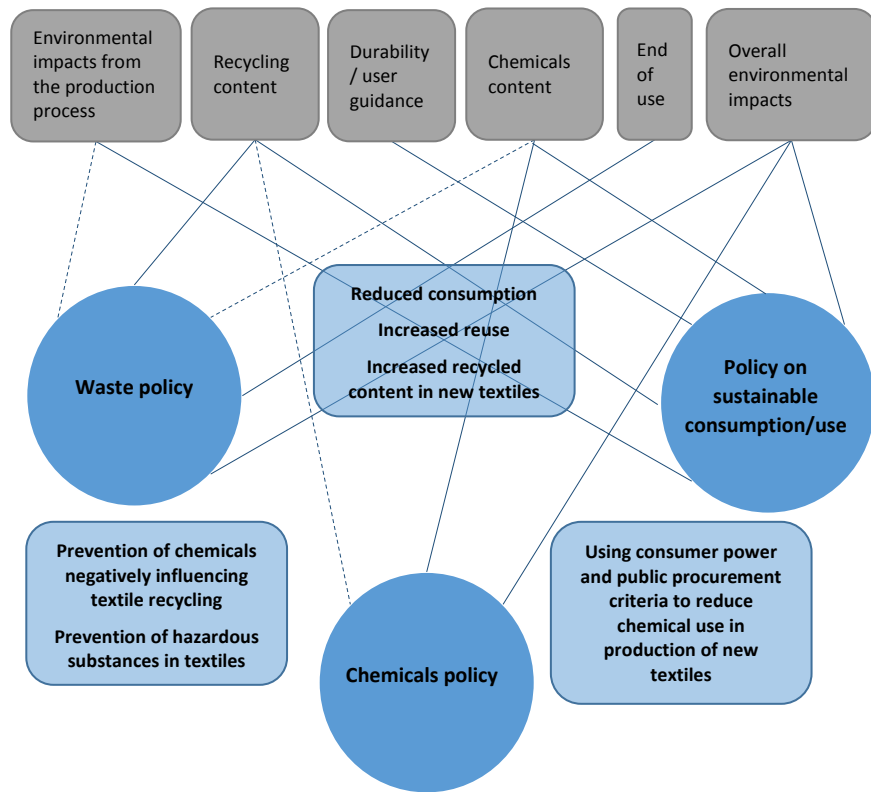
The short evaluation reveals that synergies between waste, chemicals and sustainability policy are only realized to a small extent. Many different policy areas have evolved from different backgrounds, with different objectives and with different key actors involved in the policy making process. As a result, the policy areas tend to cover and focus on a limited extent of aspects and fail making use of synergies between the policy areas. This report includes two examples to illustrate this in the area of textiles and textile wastes: information/labeling of textiles and eco design of textiles.

In the two primary focus areas REPLACE and REDUCE, lacking, insufficient or missed potentials for labeling was identified for several focus areas; e.g. sustainable business models, sustainable product design, low

impact production chains, producer corporate responsibility, consumer/citizen behavior and sustainable private and public use.

Figure 19 indicates how different aspects of labeling/information (grey boxes) of textiles might influence policies on waste, chemicals and sustainable consumption/use (blue circles). It also indicates potential synergies between the different policy areas presently not realized on full scale (light blue boxes); e.g. for reducing textile consumption, increase reuse of textiles, increase recycled content in textiles, preventing chemicals that negatively influences recycling, preventing hazardous substances in textiles and well as for better use of consumer power and public procurement criteria to reduce chemical use in production of new textiles.

Figure 19: Examples of aspects of textile product labeling/information, their influences on policy areas and potential synergies between policy areas in the field of labeling/informatio.

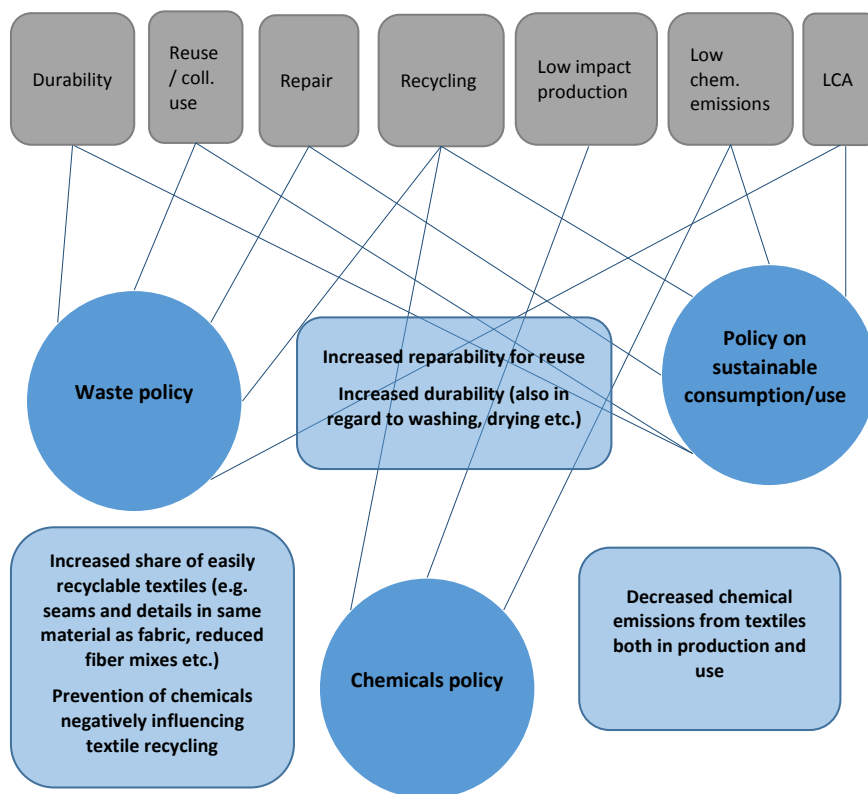


Grey boxes: Aspect of labeling; Light blue boxes: Policy synergies not realized; Blue circles: Policy areas; Lines: Strong connection; Dotted lines: Indirect connection.

In the primary focus areas REPLACE, REDUCE and EVALUATE different aspects of eco design were identified. The different aspects include e.g. design for durability, design for reuse/collective use, design for repair, design for recycling, design for low impact production, design for low emissions of chemicals as well as eco design from a more general lifecycle perspective.

Figure 20 indicates how different aspects of eco design of textiles (grey boxes) might influence policies on waste, chemicals and sustainable consumption/use (blue circles). It also indicates potential synergies between the different policy areas presently not realized on full scale (blue boxes); e.g. increasing reparability and durability of textiles, increased share of easily recyclable textiles, prevention of chemicals negatively influencing textile recycling and decreased chemical emissions from textiles both during production and use.

Figure 20: Examples of aspects of eco design of textiles, their influences on policy areas and potential synergies between policy areas in the field of eco design



Grey boxes: Aspect of labeling; Light blue boxes: Policy synergies not realized; Blue circles: Policy areas; Lines: Strong connection; Dotted lines: Indirect connection

Conclusion

This policy evaluation has focused on higher level policy with special consideration of EU-policy. This is considered relevant also for the non-EU Nordic countries (Norway and Iceland) since the national policies tend to be similar nonetheless. Future policy should however not necessarily be coming from the EU. In fact, the Nordic regions can, and probably should, act as forerunners where possible. Given the high level of trust in government and, as mentioned in the Nordic strengths and weaknesses evaluation, spirit of cooperation that is clear in the Nordic region, we as a region can show the path forward. EU (sustainability) policy has to a large extent lost its credibility (Ekins, 2014). It should therefore be clear-cut for the Nordic countries to work more closely on these issues. With success stories, the possibility for the Nordic countries to together influence EU-policy should be greater.

On the whole, policy for the area of textiles are to a large extent missing and where synergies are possible, they are not utilized which should be seen as a great opportunity for the Nordic region to make a difference.

6. Plan for a Nordic Roadmap

The plan is based on the goals as they were described in the call from the Nordic Council of Ministers. The overall objective is to reduce the environmental impacts of the consumption and production of textiles purchased and/or produced in Nordic countries. This means that in areas where there are potential significant impacts for environmental improvements, these will be prioritized. But the plan will also include the potential for other benefits, such as green growth, both through a bigger share of the increased turnover in the Nordic region market and through export. For the Nordic companies this could mean increased competitiveness and first-mover advantages. For Nordic consumers this could represent a textile and apparel production more in line with consumer's actual needs and clothing practices.

In response to this, we drafted the document *Inspiration* that suggested four "regions" that in tandem made it possible to meet the challenges for the sector. Further work and feedback from stakeholders has substantiated that this has been a fruitful approach. We are therefore basing the Plan for a follow-through-plan for a Nordic Roadmap on these four "regions". We will now give our collected recommendations for further work with the Nordic Roadmap. First, possible definitions, scope and limitations to the work are discussed. This is followed by a review of the four regions; Replace, Reduce, Redirect and Rethink. They are then evaluated and summarized based on the criteria presented in Chapter 2. To conclude, the most important challenges to making a good plan are discussed.

6.1 Important recommendations

6.1.1 Organisation

- A clear and common Nordic definition of the sector.
- Clearly define ambitious environmental goals and targets.
- Engage the whole sector.
- Create open forums such as the Textile Panel in Norway across the sector and stimulate to open debate.

- Identify and harness the strengths and weaknesses in Nordic countries and build on common goals through exchanging best practices.
- Implement political action in the form of regulations and policies.
- Connect the RM closely to the international initiatives.

6.1.2 Important working areas

- Labeling schemes that deal with quality and durability.
- Complaints, claims, lifetime warranties.
- New BMs based on growth in income and value, not in amount of textiles.
- More service-oriented textile sector.
- Discuss the relationship between the local and the global textile sector and how the region can contribute positively to the development of both.
- Clarify intended and unintended environmental and social effects of local production of textiles.
- Supporting local value chains and use them actively in the shift towards fewer and better clothing.
- Support new, good words or good concepts for the four Rs.
- Support efforts to develop and market democratic, inclusive, and/or healthy clothing.
- Develop knowledge in areas where changes have the greatest environmental potential and on issues where the Nordic countries have an opportunity to stand together and have a leading role.
- Support the public debate and give the public access to knowledge, information and platforms for exchange.

6.2 Scope and limitations

We suggest textiles and apparel for further work, as this definition will include large sectors as fur and shoes. Our work is based on a definition of the scope of textile products that covers clothing and light home textiles for public and private use. We have not included fur, industrial textiles and fabrics in vehicles, shoes, carpets, upholstered furniture, fishing nets, etc, but this should be specified better and boundaries should be clear for the

next step, and a new discussion based on our findings about lack of a clear and common Nordic definition of the sector, could be fruitful.

We believe that a RM, in order to succeed, should seek to resolve the following challenges:

1. Avoid symbolic issues and cases, and instead focus on that make a substantial difference environmentally.
2. Continue work that easily can be implemented and that lead to clear improvements environmentally and ethically/socially.
3. Contribute to a discussion of the relationship between the global and the local in textiles. How can local production contribute positively to environmental issues?
4. Collectively engage the sector in thinking positive and offensively, being inspiring and visionary. This can be done by focusing on better clothing and textiles, hence the amount goes down while functionality goes up.
5. Working with the whole sector, not just the commercial industry. This includes users (private and public), the voluntary sector, policy-makers, manufacturers and retailers, academia and research, media and advertising, designers and artisans, and thus encompasses all levels of society.
6. Engage all the Nordic countries and exploit the strength in our differences.
7. Ensure knowledge exchange through building on the current state of know-how and the enthusiasm this work is generating at different levels nationally and internationally.
8. Acquiring new knowledge where there are obvious blind spots needed for a good plan, initiate Nordic working groups in areas that need particular support, e.g. policy developments, consumer praxis, etc.
9. Set specific, ambitious, achievable and verifiable (political) goals.
10. Support the public debate on central themes in and on the area.

6.3 Replace

There is a strikingly unequal distribution of the Nordic initiatives, especially when looking at the established initiatives and looking at what really could make a difference, and when looking at potentially innovation/transformational initiatives. There are simply very few of the estab-

lished initiatives that are innovative, and none are transformative. The work so far has not taken into account the waste pyramid or the studies that indicate there is little to gain by going from energy-recovering to material recovery for textiles. An environmentally proactive efforts must concentrate on quantity (and growth rate). This is an area where few policies have been developed and little knowledge on change is available. However, fast fashion is neither an old phenomenon nor something that makes a positive contribution to society. This suggests that it should be easy to change as a phenomenon. The fact that there are a number of small consumer-driven initiatives (shop-stop, wardrobe detox, etc.) suggests that the idea of replacing fast fashion with something else, is winning terrain. Politically, it is important to give the consumers who want the opportunity to change their consumption means of doing so. To achieve this, knowledge about textiles in general and on the individual product specifically, is crucial. It will allow the consumer the possibility to choose. We therefore believe that labeling schemes that deal with quality and durability should be given high priority. Similarly complaints, claims, lifetime warranties, etc. are policy areas to address for textiles and apparel, as this also has a commercial side. Work on new business models and a shift towards a more service-oriented textile sector should be encouraged. It is interesting to note that industry and consumers here have many common interests. Knowledge about use can be better utilized and here the Nordic industry really has an advantage with its proximity and potential knowledge about a large group of users of their products.

6.4 Reduce

In the efforts to reduce the burden of production and consumption of textiles, this is the “region” where the work has progressed furthest, both nationally and internationally in the Nordic countries. It would therefore be wise to connect the RM closely to the international initiatives who work with this and thereby maximizing resources and already active stakeholders’ contributions. This can be done by supporting stakeholders to take part in this process, together with platforms for sharing the news and outcome of the process. There are, however, major differences of opinion in this field of work, both about the facts the work builds on and how best to move forward. Such discussions are important because they bring out several possible options and reveals potential for improvement. These efforts should also be followed up with political

action in the form of regulations and policies, where possible. As chapter 3 has shown, the stakeholders are calling for political actions, and this is most feasible within this area.

6.5 Redirect

An important prerequisite for Fast fashion (FF) and the appalling working conditions in low-cost countries, lack of environmental standards, etc. as the textile sector is a global industry with little regulation. The relationship between the regulation of national industry and the lack of regulation on imported goods is one of the paradoxes which is the prerequisite for the current economic growth we had the last 40 years. It seems that the Nordic countries have a somewhat different strategy in relation to these issues and it would be interesting to have a discussion and comparison of conditions in the region. It also appears that a renewed interest in home production and artisan skills is not motivated by environmental or social issues, and that a clarification of the relationship between local production and the environment and social issues should be examined further. This should include both intended and unintended environmental and social effects, related to a better understanding of things and where things are made. It is interesting to see, however, that the new and emerging project Manufacture Copenhagen has opened up to the rest of the Nordic region and are interested in making this a Manufacture Scandinavia project.

6.6 Rethink

If the RM is to engage and mobilize widely, we need “good” words and positive goals. There are strikingly few unifying words or good concepts that the RM could steer towards. Examples of such unifying concepts could be “local clothing”, “warming threads”, “Nordic apparel culture”, “New Nordic textile design”, “New Nordic fashion”. A potential good source for inspiration here is the food area, that has managed to mobilize and engage with terms such as New Nordic cuisine (Nordic Council of Ministers, 2008), local food, short-travelled food, food from scratch, from farmer to table, raw material quality, pure ingredients, slow food, etc. We should be developing positive words and link these to other policy areas (health, democracy, integration and equality) as clothing is important in all life situations and contributes positively or negatively in

relation to the challenges people face, as do the textiles we surround ourselves with. There is little focus on what good apparel and textiles are and how we can develop this further. This is particularly striking in that it is in this area the Nordic region probably has its greatest strength with a rich culture. What this represents and how it can form the basis for green growth, Nordic identity and an active life-style, has not been explored. It is of course also important to examine how the Nordic textile and apparel culture can contribute to sustainable development. We believe the lack of initiatives in the area of both Redirect and Rethink partially is due to the fact that the initiatives in these fields have other main headings and do not define themselves as environmental initiatives. It is important to understand better the relationship between intended and unintended environmentally beneficial effects. However, projects with big unintended environmentally positive effects may not have been included in the mapping.

Thinking textiles in a new way could start in schools and institutions for the elderly, sick and handicapped, because these are public institutions. What are good school clothes and how can good clothes contribute to a physically active day? How do clothes and textiles help elderly in their well-being and comfort, when they are not able to move much? How are acoustics and people's ability to participate in discourse related to the use of textiles in interiors (sound-absorption and noise-levels) such as schools, institutions and other public arenas?

6.7 Potential of the four Rs

As mentioned before, the four focus regions were selected based on the questions stated in the call. A simplified overview of the answers is given in the table 8 below, with the aim to clarify and simplify the larger picture. However, we do not mean that the answers are this simple, or that the table would show the total picture. What we want to show with it is that the different regions have different potentials. The highlighted fields show which of the four focus regions is particularly suitable for offering potential benefits in relation to the posed question.

Table 8: Evaluation of the potential of the four Rs

	Replace – a question of quantity	Reduce – a question of how	Redirect – a question of where (and therefore also how)	Rethink – a question of what and to whom
1. Will it give reasonably significant reductions in environmental pressures caused by Nordic consumption of textiles?	Yes	If the proper policy tools are used, including bans, regulations etc covering most textiles being sold	Not significantly, depends on volume and what is replaced	To a lesser degree
2. How easy is it to implement?	Not easy without legislation	<i>Easier, but what really could make a difference is harder</i>	Not easy, needs political backing	Hard
3. Does it require nurturing or is it self-sufficient?	Requires nurturing	<i>Some is self-sufficient, but what actually would make an impact, needs political backing</i>	Requires nurturing	Requires nurturing
4. Is this an area where the Nordic countries can play a leading role?	Yes	No	Yes	Yes
5. Will it contribute to green growth and jobs in Nordic countries?	Yes	No	Yes	Yes
6. Contribution to better clothing for Nordic consumers	Yes	No – or to some degree if there are less chemicals in the production phase.	Yes	Yes

6.8 The whole sector

There are some very loosely organized initiatives among consumers and some companies who try out new approaches for textile consumption, and it is important to support such initiatives and see the possibilities in scaling up or how they can be an inspiration for others. To engage the whole sector is challenging because of different degrees of involvement and varying levels of involvement. The public sector is a major user and buyer of textiles, but we have found few initiatives for this sector. Consumers are not organized so it is not easy to communicate with them, and they have little knowledge about textiles. We have not found any initiative where consumer organizations play a major role, even though Clean Clothes Campaign, “shop-stop”, #FashionRevolution and others intermittently do engage consumers. Consumers can, on the other hand,

be represented through knowledge of their behavior and views, as well as through individual activists. The business community, however, seems to be very active in the initiative we have mapped. It is positive but raises simultaneously a question about the relationship between “green” and “growth” in green growth. Or, to put it another way; what activities and initiatives have an actual environmental impact and which are closer to what is commonly called greenwashing? Collection schemes for clothes is an obvious example. There may be an important element for monitoring and training for companies, but these schemes are probably implemented to appear green and to get customers into the stores again and to buy more. Initiatives from the private sector should be studied closer for their motives and actual economic gains. It is also difficult to find a fixed standard for environmental and social parameters. The attempts so far (mostly in terms of materials and production processes) show large discrepancies and are partially based on old data and may have an industrial rather than a more holistic point of departure. The voluntary and informal sector is essential to include. And this is probably easier if the focus is more directed towards the more positive aspects of textiles. There is a lot of good environmental work not defined as such. Looking at e.g. Handarbetets Vänner and Norges Husflidslag, the large-scale training and home production has a different aim (cultural and economic), but the environment and social effect is significant. Organizations such as the Textile Panel in Norway create open forums across in the sector and stimulates to open debate. Such initiatives can be incorporated in the RM and be used actively to harbor and develop the NRM.

6.9 Nordic engagement

By identifying and harnessing the strengths and weaknesses in Nordic countries and through exchanging best practices, we can build on our common goals but also on our differences. But as comparisons of the sector in the Nordic region is lacking, and the level of knowledge on the mapped initiatives varies and has been looked at through the lenses of each country, comparison should be done with caution. Yet, the over-all picture shows that the Nordic countries have different abilities when it comes to contributing to a RM, as discussed in section 6.4.6. It is possible to consider these differences in different ways. Eg, if a country is weak in one area, should they be strengthened through cooperation, or alternatively, if a country has a special expertise in a certain area, should they

be given a lead and responsibility in this area? These two approaches could also be combined so that different work-areas are divided between two and two countries, with different focus. Organizing the work and the RM will obviously require some administration, but may on the other hand, promote cooperation and development in the field in a new way. When we have looked at the Nordic strengths and weaknesses, we have found that our common trust in each other, our focus on nature, equality, democracy, social issues, inclusion, etc. But we have some weaknesses also, that we need to learn from and take heed to: language, different raw material focus, different approaches to industry and to apparel and textiles. When this is said, not all things need to be accomplished at the Nordic level; and even though some things should be addressed at the Nordic level, others need to be addressed at a more international level, like social and ethical issues. The organization of the RM must ensure optimal involvement and participation of all countries, this can be done through creating country level RM committees or working groups responsible for input to the RM process and for actions to achieve the goals. It is also possible that the four areas are divided between countries, through existing network organizations. However we see some pitfalls, as aside from the Textile Panel in Norway, most national organizations are purely industry or industry/academic driven.

Organize the roadmap in ways that empower each member country

- Consider how to get buy in and ownership of the Roadmap from each Nordic country.
- Consider how to get buy in to the Roadmap from each sector (government, commercial, NGO, informal).
- Consider what added value the Roadmap provides countries given what they are currently doing and not doing.
- Consider what types of financial investments and commitments are required from each country.
- Consider creating country level Roadmap committees or working groups responsible for inputting into the Roadmap process and implementing actions to achieve goals.
- Action from the commercial sector is crucial. Consider how to stimulate action from this sector. As learned from WRAP, agreeing on and following through on ambitious targets is often difficult to achieve voluntarily. Perhaps this can be part of the process; getting minimum agreement on goals and targets, even if not ambitious, in order to move the industry ahead. The Roadmap can have more

ambitious targets in the longer term, but the low hanging fruits can be more achievable for companies in the short term.

6.10 Coordinating with international projects

Not all things need to be accomplished at the Nordic level. Define what should be addressed at the Nordic level, and what should not be addressed at the Nordic level.

It is important to build on the good work already being done in the Nordic region by companies, groups, individuals and initiatives. Just as important as NGOs are actually individuals. It is through the individual engagement that the Nordic perspective is fed into international discussions and initiatives, and is fed back into national projects. But in tandem with the international cooperative efforts being followed up. “Our” RM needs to outwit by being innovative and transformative, and specifically in the areas or regions the international initiatives are not addressing or are weak. The international initiatives have for the most part concentrated on industry and the business aspects, but lack an anchoring in the sector as a whole and lack knowledge on use, the informal sector, care, repair, etc. A strategy that goes counter to what everyone else is doing can both ensure that the region needs to invest less monetary resources, ensure that input gets maximum output and adds a novel dimension that achieves international attention. It is, as always, a question of not starting from scratch every single time. But it is also about identifying where “money talks”. In our analysis of initiatives the conclusions are far from clear on who should be nurtured, as the maturity and innovation matrix (however well-intended) does not give a good indication of actual impact. The mapping opens up ideas, but is in no way conclusive. But, failing to meet a goal is also valuable (for initiatives and research). It points towards new needs for understanding, and should therefore not be undermined. One possible way to develop instruments under Replace is to use organizations designed to solve problems in this area, but expand and develop the perspective. An example is to use the Nordic Swan, a well established eco-label in the Nordic countries, with a more integrated environmental thinking. It could be investigated how the Swan could evolve to include technical, aesthetic and functional durability whether this was done as aspects of today’s eco-label or an alternative label scheme. Thus the Swan could go forward In a development where use and not only production was emphasized in the communication of a product’s environmental status.

6.11 Hazardous chemicals

It is important that the work with a NRM contributes to reduce the use of hazardous chemicals, even though most textile production is located outside the Nordic countries today, as discussed in section 6.4. Chemicals can pose hazard to natural environment but also to human health, especially within production but also for the end-users. There are several major challenges in the approaches to this which have so far dominated. The initiatives have also to a little degree concerned themselves with the overriding and big questions such as how the use of chemicals in production can be regulated and reduced and how the consumers can obtain information on chemical use. Important tools for the regulation of chemicals have so far been eco-labels. However, the adoption of eco-labeled textiles in the Nordic countries is very low, and surveys of stakeholders do not imply that this is going to change, as stakeholder interviews presented in section 3.5 point out. To impose on the industry itself to make demands on their suppliers (even with the help of various tools and lists) are ineffective in relation to the value-chain's logistics and complexity (Fransson and Molander 2013). There are several reasons for this. The problems related to chemicals reach beyond those that can be traced or tested in the finished products. Large amounts of chemicals are used in production of cotton and other raw materials that are sold in open markets, that lack transparency up to the end products (Olsson, *et al.* 2009, Poulsen *et al.*, 2011). Attempts to identify chemical use also shows that they are constantly changing and overview is thus very difficult (Kemi, 2014).

Hazardous chemicals are often found when the contents of textiles on the market are tested (see for example Kruse 2009; Lohne & Kleppe 2014; Brigden *et al.*, 2012). There is lack of documentation of the chemical content, but also of the effect of the various treatments. A good example is "odor control" textiles that do not actually give synthetics lower odor level than natural materials, but only a small decrease compared to untreated synthetic materials (Damm, 2011; Laitala, Kjeldsberg & Klepp, 2012). The effect is also easily washed out (Kemikalieinspektionen, 2011).

The report's main argument in relation to chemicals can be summarized as follows:

Replace

- Chemical consumption is reduced if the amount of textiles is reduced.

Reduce

- Chemicals that are hazardous should be prohibited to be used in production (to a much greater extent).
- Chemicals that are unwanted should be clearly marked (including antimicrobial treatments, GMO, etc.) by supporting among others the REACH legislation requirements for information about the content of substances of very high concern (SVHC). The functionality of chemicals used to achieve a particular effect on textiles, such as antimicrobial or water-proofing treatments, should be required to be documented. Therefore it would be possible for the consumers and authorities to evaluate, the effect against to the chemical input and potential hazards.

Redirect

- Increased production in the Nordic countries would increase the control of chemicals' usage.
- Assess why we allow import of products that are not permitted to be produced in the Nordic countries.
- A potential for banning or restricting import of textiles from countries that lack control systems for production conditions.

6.12 Knowledge-building

A great deal of shortcoming on knowledge has already been addressed in the other sections. Generally the lack of knowledge is most glaring in the areas Replace, Redirect, Rethink. But some of the main areas that are needed to fill in the map: What characterizes the Nordic textile sector, the strengths and positive traditions and tendencies that these are to build on. What is the scope of private and informal reuse, recycling, shared ownership and co-creation/prosumption? How can these serviceable interactive forms of networks be preserved and encouraged? How can we go from fast fashion to longevity and commitment to quality for the benefit of both industry and consumers? Measures and policies

need to be added into to mix. Does the textile sector need to be global and can we ask uncomfortable questions about trade and growth? What is “the elephant in the room”? Can we truly balance environmental benefits through local production? How can Nordic textiles contribute positively in efforts to improve the whole sector, through an active life-style, happiness and empowerment?

6.13 Education, public debate and bottoms-up

A variety of stakeholders from consumers and industry authorities need information they need to implement a restructuring that has the desired effect. Several of the initiatives and organizations such as SFA, SIFO and NFA’s NICE platform work with education on environmental issues for the sector. This work is difficult as long as the basic understanding on the technical knowledge of textiles and the relation this has to environmental impact is weak. The work therefore resembles the game “Snakes and ladders”, where one time and again ends up at the starting-point. It is therefore important to build on the knowledge and support the established institutions and initiatives who have experience in this area as the problems are not going to disappear in the near future.

To support the public debate on central themes on the area, the themes need to be relevant and something the consumer can relate to. They also need to feel that what they contribute is meaningful, that they have competence (hidden or not), and be able to access platforms that are relevant.

6.14 Goals

The area Replace has the advantage that it is easy to measure and therefore easy to translate into measurable goals. We can for example have a concrete goal to stop the growth of kilograms textile imports per person, or more ambitiously to reduce it. E.g. back to level of a certain year, or to number of kilos per person. Description of target: Clearly describe what the clothing and textile sector could look like short term and longer term. Also the level of reduction one can set policy objectives for, e.g. relation to prohibited chemicals, or making it illegal import what it is not legal to produce in our region. The latter would be an ambitious goal, but probably not very feasible. But it could be implemented at national/state level. A demand that public procurement would only permit tenders for

textile products that could have been produced with the same environmental standards and ethical assumptions as if they would had been produced in the Nordic countries.

- Clearly define ambitious environmental goals and targets.
- Clearly define economics goals and targets (Green jobs, industry competitiveness, natural capital accounting).
- Goals for measuring increased and more effective Nordic collaboration.
- Success should be SMART – specific, measureable, assignable, realistic, time bound (by when).
- Linking goals to agreed scientific, legal or politically agreed goals and targets (Global sustainable development goals, European goals, national goals).

The authorities must set clearer limits. Action from the commercial sector is crucial, but also from government in order to stimulate action from this sector. As learned from WRAP, and industry-driven cooperative initiatives such as SAC, agreeing on and following through on ambitious targets is often difficult to achieve voluntarily. Regulating import of goods without chemical processing or treatments being clearly stated is one example how government could regulate this sector, giving the roadmap more ambitious and effective targets.

Rethink is more difficult to set goals for. The tools are underdeveloped, but as mentioned in WP4 D, not impossible to implement. However, the goals are not quantitative, and can never be that either.

7. Conclusions

The mapping we have done shows that many different perspectives and stakeholders are now working with environmental impacts associated with textile production and consumption. It is therefore pertinent to ask if the increased involvement also results in actions with consequent reductions of these impacts. Currently, this is not the case. Currently the focus is on incremental improvements in the supply chains. Meanwhile the amount of textiles imported into the Nordic region is not only “still” increasing, but accelerating. The amount of waste follows as a consequence. And with increased amounts of textiles, the amount of chemicals, CO₂, energy and water consumption also increases.

Main findings

- The textiles industry is an international business with few global policy regulations.
- Consumers have little knowledge about textiles in general and the products sold in Europe do not contain information about basic characteristics (durability, quality, etc) enabling the consumer to make informed choices.

There is a lot happening on the international level as well as on the Nordic level. On the International level brands and suppliers are coming together in “problem-solving networks” such as Sustainable Apparel Coalition, Zero Discharge On Hazardous Chemicals Group etc.

- Part of the reason why the high level of engagement has not generated greater actual impact, is that the instruments for actual change are lacking.
- Harnessing the enthusiasm and driving change is possible through better coordination and cooperation with existing initiatives in the mapping, but in order for a Nordic Roadmap to be truly innovative there is a need for further research and more nurturing in the less developed of the four regions identified.

Discussions surrounding the environmental consequences in the textile sector, easily ends in some quagmires:

- Blaming someone else for the problems; consumer, producers or government, etc.
- Channeling attention into relatively simple questions that provide little environmental impact but create attention, e.g. fiber or brand choices.
- Believing that a circular economy solves the problem of over-production of low-quality fabrics, by utilizing the discarded items as raw material for new products or by sending these to poor countries.

We have argued that the work of a RM for the Nordic countries should seek to build on our common values, such as democracy and a healthy and active life. To change the attention from the negative toward the positive aspects of textiles have the potential to create enthusiasm and unity. This is because:

- The impetus of the many initiatives mapped is not just a fear of textiles' environmental impact but also a genuine interest in clothing and textiles, and the ability to make them better.
- To work actively with what is a Nordic strength for clothing and textiles will have the potential to take the lead in a more forward-looking strategy.
- "A red thread" within the Nordic countries; based on function and design. The opportunity to build the sustainability work around that.
- The Roadmap should give particular attention to the on-going initiatives with high level of innovation – Use the transformative initiatives to pull the development.
- Better fabrics also means fewer, slower, stronger, and can thus reduce the amount and speed, the main challenges in the current situation.

To succeed with the turn-around required for the production, sale and consumption of clothing and textiles, the efforts need to be set in a larger context. So far, attention has been mostly focused on aspects of the production. The use-phase of textiles has to a lesser degree been addressed and when this has been done, the knowledge base is lacking. Alternately, textile waste has received increasing attention.

- Better fabrics will be fabrics that are more adapted to the use and the users.
- Work on new BMs and product development should integrate focus on the use phase.
- Green growth should be understood as both the growth in value and economy, and not in terms of volume and kilos.

To produce fabrics that can be used longer, more intensely and with love will be at least as challenging as designing textiles that can be recycled, but both the environment-saving potential and added value will be greater.

We strongly believe in a NRM and the many ongoing initiatives show that the time is ripe for more coordination and better organization. This would also clearly demonstrate the importance of our common heritage and values. Clothing and textiles are particularly visible and an important part of our society. It is time we wear them with pride not only because we know they are produced without added expense to people, animals and nature's limitations, but also because they contribute positively in our lives.

In such a development, the Nordic region could take the lead.

References

- Aquafil Group. (2014). *The ECONYL® project*. Retrieved 21st October 2014, from <http://www.aquafil.com/en/sustainability/the-econyl-project.html>
- A.I.S.E. (2009). *Laundry Sustainability Project*. Retrieved 2nd December 2013, from <http://www.cleanright.eu/>
- Austgulen, M. H. (2013). *Consumer perspectives on eco-labeling of textiles: Results from five European countries* (pp. 84). Oslo: SIFO. http://www.sifo.no/files/file78708_oppdragsrapport_2-2013_web.pdf
- Austgulen, M. H. & Stø, E. (2013). *Barriers to the success of eco-labels for textiles: A report from stakeholder interviews in Norway* (pp. 60). Oslo: SIFO. http://www.sifo.no/files/file78707_oppdragsrapport_1-2013_web.pdf
- Bianchi, C. & Birtwistle, G. (2012). Consumer clothing disposal behaviour: a comparative study. *International Journal of Consumer Studies*, 36(3), 335–341. <http://dx.doi.org/10.1111/j.1470-6431.2011.01011.x>
- Bik Bandlien, C. & Klepp, I. G. (2010). *Old mending techniques in Vogue*. Oslo Fashion Week, 98–99. Retrieved 20th October, 2014, from <http://nordicfashionassociation.com/old-mending-techniques-vogue-uk>
- Bjerck, M., Klepp, I. G. & Skoland E. (2013). *Made to fit: Å kle en avvikende kropp – handikap og klær*. 9–2013.
- Boalt, C. & Carlsson, G. (1949) *Mor och barn från morgon till kväll: en studie av 80 barns miljö*. Hemmens forskningsinstitut, Stockholm.
- Brigden, Kevin, Iryna Labunska, Emily House, David Santillo and Paul Johnston. (2012). Hazardous chemicals in branded textile products on sale in 27 places during 2012. In: *Technical Report 06/2012: Greenpeace Research Laboratories*. Retrieved 17th November from <http://www.greenpeace.org/international/Global/international/publications/toxics/Water%202012/TechnicalReport-06-2012.pdf>
- Brosdahl, D. J. C., & Carpenter, J. M. (2010). Consumer Knowledge of the Environmental Impacts of Textile and Apparel Production, Concern for the Environment, and Environmentally Friendly Consumption Behavior. *Journal of textile and apparel, technology and management*, 6(4), 1–9.
- Bugge, A. (2012). *Spis deg sunn, sterk, slank, skjønn, smart, sexy...: finnes det en diett for alt?*. 4-2012, Oslo, SIFO
- Burke, J. (2013, 8 December). Bangladesh factory fires: fashion industry's latest crisis. *The Guardian*. Retrieve 22nd October 2014 from <http://www.theguardian.com/world/2013/dec/08/bangladesh-factory-fires-fashion-latest-crisis>
- Butler, S. M., & Francis, S. (1997). The Effects of Environmental Attitudes on Apparel Purchasing Behavior. *Clothing and Textiles Research Journal*, 15(2), 76–85. <http://dx.doi.org/10.1177/0887302X9701500202>
- Buttle, M., Vyas, D. & Spinks, C. (2013). *Evaluating the financial viability and resource implications for new business models in the clothing sector*. Banbury, Oxon: Wrap.

- Charbonneau, J. S. (2008). *Social responsibility and women's acquisition of secondhand clothing*. (Doctoral dissertation), Colorado State University, Fort Collins, CO. Retrieved from http://digitool.library.colostate.edu//exlibris/dtl/d3_1/apache_media/L2V4bGlicmlzL2R0bC9kM18xL2FwYWNoZV9tZWRpYS8xMjkxMQ==.pdf
- Colour Connections. (2011). *Eco-metrics is a simple tool devised to calculate the environmental impact of the different textile types and different production methods*. Retrieved 12.5.2011, 2011, from <http://www.colour-connections.com/EcoMetrics/index.html>
- Damm, J. (2011). Silver i "luktfria" kläder – En stinkande lösning: En studie av antibakteriella behandlingar baserade på silversalter utifrån miljö-, hälso- och konsumentperspektiv. In: *Swedish school of textiles*. Borås: University of Borås. Retrieved from <http://bada.hb.se/bitstream/2320/9175/1/2011.14.6.pdf>
- Domina, T. & Koch, K. (1999). Consumer reuse and recycling of post-consumer textile waste. *Journal of Fashion Marketing and Management*, 3(4), 346–359. <http://dx.doi.org/10.1108/eb022571>
- Eicher, J. B. (ed.), (2010). *Berg Encyclopedia of World Dress and Fashion* Oxford: Berg
- Ekins, P. (2014). *Statement at Dynamix Policy Platform meeting*. Brussels
- Ekström, K. M., Gustafsson, E., Hjelmgren, D., & Salomonson, N. (2012). *Mot en mer hållbar konsumtion: En studie om konsumenters anskaffning och avyttring av kläder* [Towards a more sustainable consumption: A study of consumers' acquisition and disposal of clothing] Vetenskap för profession 20:2012 (pp. 143). Borås: Högskolan i Borås. <http://bada.hb.se/bitstream/2320/10630/1/Vetenskapnr20.pdf>
- Elander, M. S., L. Dunsö, O. S., & M. Allerup, J. (2014) *Konsumtion och återanvändning av textilier*. SMED rapport 149.
- European Commission (2014a). *VAT rates applied in the Member States of the European Union*. Situation at July 1st, 2014, taxud.c.1(2014)2276174 – EN, http://ec.europa.eu/taxation_customs/resources/documents/taxation/vat/how_vat_works/rates/vat_rates_en.pdf
- European Commission (2014b). *Towards a circular economy: A zero waste programme for Europe*, COM(2014) 398, http://eur-lex.europa.eu/resource.html?uri=cellar:50edd1fd-01ec-11e4-831f-01aa75ed71a1.0001.01/DOC_1&format=PDF
- European Commission (2014c). *Commission decision of 5th June 2014 establishing the ecological criteria for the award of the EU Ecolabel for textile products*. (2014/350/EU). Retrieved 23 October, 2014, from http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ:JOL_2014_174_R_0015
- European Environment Agency (2014). *Environmental indicator report 2014. Environmental impacts of production-consumption systems in Europe*. Luxembourg. <http://www.eea.europa.eu/publications/environmental-indicator-report-2014>
- European Parliament and the Council (2008). *Directive 2008/98/EC on waste and repealing certain Directives*. Retrieved 16th August, 2014, from <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32008L0098>
- Farrant, L. (2008). Environmental benefits from reusing clothes. In: *Department of Management Engineering*. Kgs. Lyngby Technical University of Denmark. Retrieved from <http://etd.dtu.dk/thesis/240978/>
- Farrant, L., Olsen, S., & Wang, A. (2010). Environmental benefits from reusing clothes. *The International Journal of Life Cycle Assessment*, 15(7), 726–736. <http://dx.doi.org/10.1007/s11367-010-0197-y>

- Fibershed (2013). *Annual report 2013*. <http://www.fibershed.com/wp-content/uploads/2014/02/Fibershed-2013-annual-report-rev2.pdf>
- Finatex (2014) *Statistics – Production and business trends*. URL accessed 2nd October 2014 <http://www.finatex.fi/en/statistics/production-and-business-trends.html>
- Finatex (2013) *Textile and clothing industry statistics*. URL accessed 2nd October 2014 http://www.finatex.fi/media/julkaisut/tiedostot/tkirja_2013.pdf
- Fisher, K., James, K., & Maddox, P. (2011). *Benefits of reuse case study: Clothing*. Banbury: WRAP.
- Fletcher, K. & Tham, M. (eds.) (2015). *The Routledge Handbook of Sustainability and Fashion*. London: Routledge.
- Fransson, K. & Molander, S. (2013). Handling chemical risk information in international textile supply chains. *Journal of Environmental Planning and Management* 56(3):345–361. <http://dx.doi.org/10.1080/09640568.2012.681032>
- Gam, H. J. (2011). Are fashion-conscious consumers more likely to adopt eco-friendly clothing? *Journal of Fashion Marketing and Management*, 15(2), 178–193. <http://dx.doi.org/10.1108/13612021111132627>
- GOTS. (2014). *Global Organic Textile Standard (GOTS) Version 4.0*. Global Organic Textile Standard International Working Group. <http://www.global-standard.org/the-standard/latest-version.html>
- Ha-Brookshire, J. E., & Hodges, N. N. (2009). Socially Responsible Consumer Behavior? Exploring Used Clothing Donation Behavior. *Clothing and Textiles Research Journal*, 27(3), 179–196. <http://dx.doi.org/10.1177/0887302X08327199>
- Hines, J. D., & Swinker, M. E. (2001). Knowledge: a variable in evaluating clothing quality. *International Journal of Consumer Studies*, 25(1), 72–76. <http://dx.doi.org/10.1111/j.1470-6431.2001.00172.x>
- Høst-Madsen, N. K., Damgaard, C. K., Jørgensen, R., Bartlett, C., Bullock, S., & Richens, J. (2014). *Danish apparel sector natural capital account*. Copenhagen: The Danish Environmental Protection Agency. http://mst.dk/media/129531/natural-capital-account-for-the-danish-apparel-sector_final.pdf
- ISO 9000 (2005). *Quality management systems – Fundamentals and vocabulary*. Geneva: International Organization for Standardization.
- KEMI (2014). *Chemicals in textiles – Risks to human health and the environment. Report from a government assignment*. Swedish Chemicals Agency. Report 6/14. Stockholm. Retrieved 30 October, 2014, from <http://www.kemi.se/Documents/Publikationer/Trycksaker/Rapporter/Report6-14-Chemicals-in-textiles.pdf>
- Kemikalieinspektionen. (2011). Antibakteriella ämnen läcker från kläder vid tvätt – analys av silver, triklosan och triklokarban i textilier före och efter tvätt. Ed. Anne-Marie Johansson. Bromma: *Kemikalieinspektionen*. Retrieved 17th November 2014 from http://www.kemi.se/Documents/Publikationer/Trycksaker/PM/PM4_11.pdf
- Kim, H.-S., & Damhorst, M. (1998). Environmental Concern and Apparel Consumption. *Clothing and Textiles Research Journal*, 16(3), 126–133. <http://dx.doi.org/10.1177/0887302X9801600303>
- Klepp, I.G. (2001). *Hvorfor går klær ut av bruk? Avhending sett i forhold til kvinners klesvaner* [Why are clothes no longer used? Clothes disposal in relationship to women's clothing habits] Report No. 3-2001. Oslo: SIFO. http://www.sifo.no/files/file48469_rapport2001-03web.pdf

- Klepp, I. G. & Skuland, Silje. (2013). The Rationalisation of Consumption Reasons for Purchasing Outdoor Recreational Outfits. In M. Vaccarella & J. L. Foltyn (Eds.), *Fashion Wise* (pp. 43–52). Oxfordshire: Inter-Disciplinary Press.
- Klepp, I. G. & Tobiasson, T. S. (2013) *Ren ull*. Aschehoug, Oslo.
- Klepp, I. G. & Tobiasson, T. S. Skårdal (4.6.2014) *Gift I klær – en gang til*. Dagens Næringsliv, Oslo.
- Kruse, K. (2009). *Analyser av kemikalier i varor. Ett delprojekt inom projektet Giftfritt Göteborg*. Göteborg: Göteborgs Stad Miljöförvaltningen. Retrieved 17th November 2014 from http://goteborg.se/wps/wcm/connect/9ab78cef-01aa-4a86-881c-c4fdb97dd6f/N800_R2009_8.pdf?MOD=AJPERES
- Kviseth, K. & Tobiasson, T. S. (2011) Pulling Wool over our Eyes: The Dirty Business of LCAs, In: *KEA Conference Towards sustainability in Textiles and Fashion industry*, Copenhagen. URL accessed 2nd October 2014 http://nordicfashionassociation.com/sites/default/files/kea_paper.pdf
- Laitala, K. (2014) *Clothing consumption – An interdisciplinary approach to design for environmental improvement*, PhD thesis, Norwegian University of Science and Technology, Trondheim.
- Laitala, K. & Boks, c. (2012) Sustainable clothing design: Use matters. *Journal of Design Research*, Vol. 10, No. 1/2, pp. 121–139. <http://dx.doi.org/10.1504/JDR.2012.046142>
- Laitala, K., Kjeldsberg, M & Klepp, I. G. (2012). Troubles with the solution: Fabric softeners and odour properties. *Tenside Surfactants Detergents* 49(5):362–368. <http://dx.doi.org/10.3139/113.110203>
- Laitala, K., Hauge, B., & Klepp, I. G. (2009). *Large? Clothing size and size labeling*. TemaNord 2009:503. Copenhagen: Nordic Council of Ministers.
- Laitala, K., & Klepp, I. G. (2013a). Bare mote? Materialitetens betydning for klærs levetid. In: P. Strandbakken & N. Heidenstrøm (Eds.), *Hinsides symbolverdi – Materialiteten i forbruket* (pp. 145–167). Oslo: Novus.
- Laitala, K., & Klepp, I. G. (2013b). Environmental and ethical perceptions related to clothing labels among Norwegian consumers. *Research Journal of Textile and Apparel*, 17(1), 50–58.
- Laitala, K., & Klepp, I. G. (2014) Arv og deling av klær, sko og sportsutstyr, In: Randi Lavik and Elling Borgeraas (eds.), *Forbrukstrender 2014: SIFO survey: SIFO*, Oslo, pp. 25–28.
- Laitala, K., Austgulen, M.H., & Klepp, I. G. (2014). Responsibility Without Means. In: S. S. Muthu (Ed.), *Roadmap to Sustainable Textiles and Clothing. Environmental and Social Aspects of Textiles and Clothing Supply Chain* (Vol. 2, pp. 125–151). Singapore: Springer Singapore. http://dx.doi.org/10.1007/978-981-287-110-7_5
- Laitala, K., Klepp, I.G., Morley, N., Meistad, T., Chapman, A., & Chen, W. (2012). *Potensiale for økt materialgjenvinning av tekstilavfall og andre avfallstyper (papir/papp, metall og glass)* [Potential for increased material recycling of textile waste and other waste types] (pp. 211). Oslo: SIFO for Klima- og forurensningsdirektoratet. http://www.sifo.no/files/file78453_fagrapport_2-2012_rev1.pdf
- Lee, H. (2013) *Why Finnish babies sleep in cardboard boxes*. BBC News, 4th June 2013. URL accessed 3rd October 2014 <http://www.bbc.com/news/magazine-22751415>

- Lohne, L. & Kleppe, M. K. (2014). Fant giftstoffer i barneklær. In: *Dagens næringsliv*. Retrieved 17th November 2014 from <http://www.dn.no/nyheter/politikkSamfunn/2014/06/01/Milj/fant-giftstoffer-i-barneklær>
- Madsen, J., Hartlin, B., Perumalpillai, S., Selby, S., & Aumônier, S. (2007). *Mapping of Evidence on Sustainable Development Impacts that Occur in Life Cycles of Clothing: A Report to Defra*. London: Environmental Resources Management Ltd. http://randd.defra.gov.uk/Document.aspx?Document=EV02028_7073_FRP.pdf
- Markkula, A., & Moisander, J. (2012). Discursive Confusion over Sustainable Consumption: A Discursive Perspective on the Perplexity of Marketplace Knowledge. *Journal of Consumer Policy*, 35(1), 105–125. <http://dx.doi.org/10.1007/s10603-011-9184-3>
- McGill, M. (2009). *Carbon Footprint Analysis of Textile Reuse and Recycling*. (Master's thesis), Imperial College London. Retrieved from http://warr.org/774/1/2.4_IC_MMcGill_09_thesis_v3.pdf
- Micheletti, M. (2003). *Political virtue and Shopping. Individuals, consumerism and collective action*. New York: Palgrave Macmillan. <http://dx.doi.org/10.1057/9781403973764>
- Miller, D. (2001). *The dialectics of shopping*. Chicago: University of Chicago Press.
- Morley, N., Slater, St., Russell, S., Tipper, M., & Ward, G. D. (2006). *Recycling of Low Grade Clothing Waste. Prepared for Defra Aylesbury*. UK: Oakdene Hollins Ltd Salvation Army Trading Company Ltd and Nonwovens Innovation & Research Institute Ltd.
- Morley, N., Caroline B. and McGill, I. (2009). *Maximising Reuse and Recycling of UK Clothing and Textiles. Incl. Appendix 1 – Technical Report*. London: A research report completed for Defra by Oakdene Hollins Ltd. Retrieved from <http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&ProjectID=16096>
- NFI (2014a). *Manufacture Copenhagen*. Retrieved 21 October, 2014, from <http://nordicfashionassociation.com/news/manufacture-copenhagen-0>
- NFI (2014b). *Hvor går veien for den norske mote- og tekstilbransjen?* Retrieved 21st October, 2014, from http://www.norwegianfashioninstitute.com/#press_1976
- Nielsén and Sternö (2013). *Modebranschen i Sverige – statistik och analys 2014*. Tilväxtverket <http://www.tillvaxtverket.se/huvudmeny/faktaochstatistik/modeochmusik/modebranschenisverige.4.f249ff31436005d87d1543.html>
- Niinimäki, K. (2009, 28th–29th May 2009). *Consumer Values and EcoFashion in the Future. Paper presented at the Future of the Consumer Society*. Proceedings of the Conference “Future of the Consumer Society”, Tampere, Finland.
- Nordic Council of Ministers (2008). *New Nordic cuisine*. Copenhagen http://nynordiskmad.org/fileadmin/webmasterfiles/PDF/Ny_Nordisk_Mad_Low.pdf
- Nordic Ecolabeling. (2012). *Nordic Ecolabeling of Textiles, hides/skins and leather. Includes products for apparel and furnishings*. Version 4.0. 12th December 2012–31st December 2016. from <http://www.nordic-ecolabel.org/criteria/product-groups/?p=3>
- Nordic statistics (2014a). *The Nordic statistics bank*. Table FOTR46: Exports, 1,000 euro, by commodity, reporting country and time. URL accessed 2nd October 2014 <http://91.208.143.50/pxweb/pxwebnordic/dialog/statfile1.asp>
- Nordic statistics (2014b). *The Nordic statistics bank*. Table NAAC11: Final consumption expenditure of households after reporting country, purpose, prices, currency and time. URL accessed 2nd October 2014 <http://91.208.143.50/pxweb/pxwebnordic/dialog/statfile1.asp>

- Oeko-tex (2014). *Certified products*. Retrieved 23rd January 2014, 2014, from https://www.oeko-tex.com/en/consumers/certified_products_consumers/certified_products_consumers.html
- Olsson, E., Posner, S., Roos, S., & Wilson, K. (2009). Kartläggning av kemikalieanvändning i kläder. In: *Uppdragsrapport 09/52*. Mölndal: Swerea IVF. Retrieved 17th November 2014 from https://www.kemi.se/Documents/Publikationer/Trycksaker/Rapporter/Kartlaggning_kemikalieanvandning_i_klader_2010-03-17.pdf
- Ø ZDHC (2014). *Roadmap to zero discharge of hazardous chemicals 2014*. From <http://www.roadmaptozero.com/>
- Palm, D., Elander, M., Watson, D., Kiørboe, N., Salmenperä, H., & Dahlbo, H. (2014). *Towards a Nordic textile strategy – Collection, sorting, reuse and recycling of textiles*. TemaNord 2014:538. Copenhagen: Nordic Council of Ministers. <http://dx.doi.org/10.6027/TN2014-538>
- Perry, Mark J. (2010). *Spending on Clothing and Footwear Falls Below 3% of Disposable Income for First Time in U.S. History*. CARPE DIEM Professor Mark J. Perry's Blog for Economics and Finance. Retrieved 20 October, 2014, from <http://mjerry.blogspot.no/2010/03/spending-on-clothing-and-footwear-falls.html>
- Poulsen, P.B., Schmidt, A. & Nielsen, K.D. (2011). Kortlægning af kemiske stoffer i tekstiler. In: *Kortlægning af kemiske stoffer i forbrugerprodukter*. Nr. 113 2011: Miljøministeriet. Retrieved 17th November from <http://www2.mst.dk/udgiv/publikationer/2011/09/978-87-92779-37-3.pdf>
- Solidaridad (2014). *Better Mill Initiative*. From <http://textiles-solidaridad.org/>
- Statsindkøb (2014) *Herning vil genbruge arbejdstøj*. Statsindkøb, 30–31. Retrieved 30th October, 2014, from http://issuu.com/klsgrafisk/docs/statsindk_b_4-2014/31?e=11019199/9258778
- Stø, E., & Laitala, K. (2011). *Sustainable standards in textile labels, a literature overview Project deliverable from the SESTI project*. Oslo: SIFO.
- Sustainable Apparel Coalition (2012). *The Higg Index 1.0*. Retrieved 13th September 2012. From <http://www.apparelcoalition.org/higgindex/>
- Terragni, L., Torjusen, H., & Vittersø, G. (2009). *The dynamics of alternative food consumption: contexts, opportunities and transformations*. Anthropology of food (S5 September 2009).
- Tham, M. (2015). *Futures of Futures Studies in Fashion*. The Routledge Handbook of Sustainability and Fashion, Oxon.
- Tobiasson, Tone. (2014). "Her talk was worth the whole trip!" Ecotextile news. <http://www.ecotextile.com/opinion/her-talk-was-worth-the-whole-trip.html>
- Tojo, N., Kogg, B., Kiørboe, N., Kjær, B., & Aalto, K. (2012). *Prevention of Textile Waste: Material flows of textiles in three Nordic countries and suggestions on policy instruments*. TemaNord 2012:545 (pp. 121): Nordic Council of Ministers. <http://dx.doi.org/10.6027/TN2012-545>
- Udbudsportalen (2013). *Hvad skal du købe? Tekstiler. Miljøkrav*. Retrieved 30th October 2014, from <http://csr-indkob.dk/products/tekstiler/>
- Ungerth, L., & Carlsson, A. (2011). *Vad händer sen med våra kläder? Enkätundersökning*. Stockholm: Konsumentföreningen. http://www.konsumentforeningenstockholm.se/Global/Konsument%20och%20Milj%c3%b6/Rapporter/KfS%20rapport_april11_Vad%20h%c3%a4nder%20sen%20med%20v%c3%a5ra%20kl%c3%a4der.pdf

- Valeur, C.C. (2013). *The Potential for Green Textile sourcing from Tirupur – On the path to more sustainable global textile chains*. Nordic Council of Ministers. Copenhagen: Danish Federation for Small and Medium-sized Enterprises. <http://dx.doi.org/10.6027/TN2013-540>
- Vittersø, G., & Jervell, A. M. (2011). Direct markets as multiple consumption spaces: The case of two Norwegian collective marketing initiatives. *International Journal of Sociology of Agriculture and Food*, 18(1), 54–69.
- Vittersø, G., & Schjøll, A. (2010). *Gårdshandel som innkjøpsaktivitet og fritidsopplevelse*. Oslo: SIFO.
- Watson, D., Kiørboe, N., Palm, D., Tekie, H., Harris, S., & Ekvall, T. (2014). *EPR systems and new business models – Reuse and recycling of textiles in the Nordic region*. TemaNord 2014:539. Copenhagen: Nordic Council of Ministers. <http://dx.doi.org/10.6027/TN2014-539>
- Woolridge, A. C., Ward, G. D., Phillips, P. S., Collins, M., & Gandy, S. (2006). Life cycle assessment for reuse/recycling of donated waste textiles compared to use of virgin material: An UK energy saving perspective. *Resources, Conservation and Recycling*, 46(1), 94–103. <http://dx.doi.org/10.1016/j.resconrec.2005.06.006>
- World Commission on Environment and Development (1987). *Our Common Future*. Oxford University Press, Oxford. <http://dx.doi.org/10.1016/j.resconrec.2005.06.006>
- Worldwatch Institute (2011). *Vital signs 2011: The trends that are shaping our future*. Washington, DC, Worldwatch Institute.

Sammendrag

Rapporten som har som mål å foreslå en plan for et samordnet nordisk arbeid mot en bærekraftig utvikling innen tekstiler og kartlegge pågående initiativ på området. Målet var en ambisiøs plan med potensiale til signifikant reduksjon i miljøbelastning. For å målene ble det staket ut fire landskap planen burde omfatte.

Eliminere "fast fashion" (Replace)

Det viktigste for å oppnå en miljømessig effekt av betydning, er å redusere mengden tekstiler i sirkulasjon. Dette vil redusere produksjonen av avfall og bruken av kjemikaler.

Redusere ressursbruk (Reduce)

Perspektivet handler om å redusere innsatsfaktorene i tekstilers verdikjeder. Dette omfatter ulike former for kretsløpstenkning, materialeffektivitet, kommersielt gjenbruk og avfallsbehandling.

Supplere globalt med lokalt (Redirect)

Lokalt produserte tekstiler med vekt på råvarer, tradisjoner, særpreg og nytenkning er et nytt og positivt grep som kan få oppmerksomhet også utenfor miljøinteresserte kretser. De kan brukes som spydspill i en omlegging mot produkter med varige verdi. Forståelse for gode råvarer, og riktig pris er nødvendig for avvikling av "fast fashion". Arbeidet har potensiale til å skape grønn vekst.

Inkludere og demokratisere (Rethink)

Norden er på sitt beste et inkluderende og demokratisk samfunn. Moteindustrien derimot har vært rettet mot de unge og tynne. Etisk mote omfatter ikke bare hvordan klær produseres, men også hvem de produseres til og hvordan klærne påvirker muligheten for livsutfoldelse.

Pågående initiativer

Kartleggingsarbeidet viste mange pågående initiativ i Norden. Arbeidet har for det meste vært konsentrert omkring perspektivet som over er omtalt som "redusere ressursbruk". De etablerte initiativene er de minst innovative. Et viktig dilemma når oppmerksomheten er mot bedre utnyttelse av avfall, er at dette indirekte kan bidra til økt vekst i volum.

Kunnskap og videre forskning

Det er minst kunnskap der det er størst mulighet for reduksjon i miljøbelastning. Kunnskapen følger en omvendt avfallspyramide der levetid og avfallsforebygging er viktig, men med et lavt kunnskapsnivå. En annen viktig forskjell er mellom kunnskap omkring markedet forstått som en utveksling av penger og kunnskap omkring det som foregår utenfor de formelle markedene. Det er også generelt lite kunnskap omkring de siste stadier av verdikjeden. Rapporten inneholder en liste over kunnskapsmangler og forslag til videre forskning.

Nordisk posisjon og styrke

- Forbrukeren har et lavt nivå av kunnskap om tekstiler og produktene inneholder ikke informasjon om egenskaper til produktene (forventet levetid, kvalitet) som gjør det mulig å ta informerte valg.
- Nordens største styrke er en enkel funksjonell og praktisk design.
- Håndverkstradisjoner er sterke, men truet.
- Det er en viss fornyelse av interesse i lokal produksjon.
- Gjenbruk og resirkulering er de viktigste fokusområder, til tross for mangel på gjenvinningsindustri og begrenset marked for gjenbruk.
- Norden blir ansett som å ha høy etisk og miljømessig standard.
- Samarbeide står sterkt.
- Sosiale nettverk og nye elektroniske verktøy kan utnyttes bedre.
- Inkludering, demokrati og deltakelse er viktige felles verdier.
- Det mangler statistikk over sektoren.

Politikk og regulering

Tekstilindustrien er internasjonal bransje med lite regulering. Dette tilsier at det er en stor mulighet for Norden å gjøre en forskjell.

Anbefalinger for Nordisk Veikart

- Unngå symbolske saker og fokusere på en betydelig miljøforskjell.
- Diskutere forholdet mellom det globale og det lokale i tekstiler.
- Engasjere hele sektoren i å tenke positivt og offensivt, være inspirerende og visjonær.
- Få med hele sektoren, ikke bare den kommersielle industrien.
- Engasjere alle de nordiske landene og utnytte styrken i forskjeller.

- Sørge for kunnskapsutveksling gjennom samarbeid nasjonalt, nordisk og internasjonalt.
- Anskaffelse av ny kunnskap der det mangler.
- Sett konkrete, ambisiøse, og oppnåelige (politiske) mål.
- Støtte offentlig debatt om sentrale temaer.

Appendix 1: Feedback from stakeholders on “inspiration”

The document “Inspiration” was the first thing that was written in the project (Chapter 2). The inspiration document was then sent to 22 people for comments, both academics, industry people, NGO representatives, press and politicians. This Appendix includes:

- The introductory letter that was sent together with the inspiration document.
- A short summary of the received feedback.
- Citations of some of the comments.

The introductory letter

The Nordic Council of Ministers has commissioned a mapping and evaluation of Nordic and international initiatives that drive the development towards sustainable textiles and apparel. The aim is to create a bold and innovative Nordic Roadmap for a more environmentally safe and ethical approach to the entire textile value-chain. Leading the work is the Norwegian Institute for Consumer Research (SIFO), along with NFA/NICE, SFA, CRI and IVL.

The overall objective is to contribute to scoping the content of a Nordic Roadmap on Sustainable Textiles whose aim will be to reduce the environmental impacts of the consumption and production of textiles purchased and/or produced in Nordic countries. The goal will be achieved through the mapping and evaluation of Nordic and international initiatives. This mapping will identify some prioritized areas and initiatives that we suggest should be focused on in the Nordic Roadmap and a proposal for a work plan for the Roadmap. The priority areas will guide the final selection and evaluation of initiatives for inclusion in the Roadmap. The work will be based on the problem description in the tender document, which emphasizes that issues that should be tackled by the Nordic Roadmap include questions concerning the volume and growth in demand for new textiles, the use of chemicals and resources

during textile products' life-cycle, and on specific aspects of the way textiles are produced and consumed.

The overall goal of a Roadmap will be environmental improvements. This means that in areas where there are potential significant impacts for environmental improvements, these will be prioritized. The plan will also include the potential for other benefits. For the Nordic region other benefits can be green growth, both through a bigger share of the Nordic market and through export. For Nordic consumers this could represent a textile and apparel production more in line with consumers' actual needs and clothing practices. This dual objective can only be achieved through an innovative Roadmap, building on existing, emerging initiatives and new thinking.

Below you will find two different parts of the on-going work. The first, which is meant as inspiration, gives a direction for the mapping and evaluation; which areas or rather regions we wish to enter into. The second part is a list of different focus-areas for use in the mapping process. Here we are trying to establish what types of actions and processes offer possibility for change within the regions identified.

Suggestions for scope

In the selection of the scope we have focused on the following issues:

- Will this area give reasonably significant reductions in environmental pressures caused by Nordic consumption of textiles?
- Is this an area where the Nordic countries can play a leading role?
- Will it contribute to green growth and jobs in Nordic countries?
- Contribution to better textiles for Nordic consumers.
- How easy is it to implement?
- Does it require nurturing or is it self-sufficient?

The over-view of Nordic initiatives has not been mapped yet, but will later be described and placed in the landscape you find further down.

Feedback from stakeholders

We received comments back from six people. Four of these were academics, one represents the Nordic Swan label and one is a Member of Parliament in Norway. We sent to Norway, Sweden, Denmark, Finland and the UK, and we had answers back from all countries. In addition, the steering committee read the document. Lesser ambiguities and weaknesses have been corrected as a result of this feedback. But the reactions it has generated has not changed main content with division into the four Rs, and therefore we have kept the broader focus on what sustainability in the sector might be. The 4 Rs as therefore the basis for further work. It has been inspiring, but it is clear that there are different opinions about the relationship between a the different “regions” and sustainability, and different opinions on the boundaries between the four Rs. Specifically, the relationship and boundaries between the first two created some confusion (Replace and Reduce).

Citations of some of the comments

“I enjoyed the document’s blending of issues associated with the challenges of engaging with the quantity of consumption alongside issues of efficiency improvements and chemicals reduction. To propose to engage with both of these simultaneously in a Roadmap type project, is wonderful to see!” (KF)

“The categories (Replace etc.) are also relevant and have been much researched lately and there seem to be some general understanding of what they mean. (...) There could be a more visionary part of the project description. Sustainability today is characterized by a neo-protestantistic view where a sustainable lifestyle is boring, ugly and uncomfortable. This has to change in to fun, sexy and comfortable in order to attract the masses that are not (and will never be) interested in sustainability issues and I miss this perspective in the text.

The text should show better general understanding of how the apparel- and footwear system is built up and show some statistics on the problems with this system, here are a few from the top of my head that could be relevant:

- Return rate: 20–35% and increasing in the Nordic countries and up to 70% in Germany.
- More than half of the returns are due to poor fit of garments; up to 60% of denim customers have problems finding garments that fit them.
- About one third of garments are sold at markdown at the end of the season, this is due to long lead-times and poor forecasts.

If possible, we at the Swedish School of Textiles would also like to be a part of this project in some way. We conduct substantial research on many of the mentioned issues and we think that we could provide very good input.” (JL)
“I don’t know what kind of feedback you hope to achieve from me but as a lecturer at KEA (Copenhagen School of Design and Technology) I am used to teach in Sustainable Fashion on our BA in Sustainability within Fashion, Purchase and Communication. Our focus is on the whole value chain from a holistic sustainable point of view. I find this pivotal to Sustainable thinking and therefore I have had these glasses on when reading this document. I am not sure of how this document will come in use afterwards (looking forward to hearing more about that), but after reading it I think it has a lot of good ideas and for me who have been interested in this area for years I really hope that all these steps can help push forward our industry in a positive and developing direction. After saying that I think that this document cater companies that already has an interest in this area and innovation and being in forefront, but a lot of companies are not like that, so a differentiation might be a good thing to look into too.

I think you could have a headline more REVALUE where you talk about valuing the makers and give them a pivotal role for developing W2W products and relations between, designer, maker, wearer and communicator. What we see now is how bad products are made, because we don’t put the good product/service based on relations and empathy in in the center of our business.” (TH)

“The themes are interesting and well chosen.” (KN)

There was some misunderstanding as to the function of the paper, which gave some criticism; but some points were also made that could be interesting to follow up (including the points made by JL on disruption and return rates).

“I wanted to ask why the vast majority of the work focuses on product and material qualities, rather than the socio-cultural aspects of fashion? And I wanted to ask how this relates to other work – The Well Dressed report for instance? And how you propose to develop work in the four areas mentioned. Some of them are pretty obvious and I can imagine which methods you will employ (e.g. Reduce and Rethink), but how about Redirect and Replace? Also at times I felt a little as if some of the implicit assumptions underpinning some of the areas could be teased out a little more... perhaps to acknowledge the contested nature of them and the necessary subtlety of responses.” (KF)

“Eco-labeling is relevant to several areas mentioned in the document. In REPLACE because eco-labeling has quality standards for the products. In REDUCE because eco-labeling sets high health and environmental standards for the production of textiles. In addition eco-labels on the Nordic market are also working with criteria for related products like laundries, hotels and detergents and therefore has a broad experience in washing and handling of textiles during the user-phase. In RETHINK because environmental labeling has several types of ethical requirements.

As mentioned in the document, the mapping of Nordic initiative has not started yet. I hope that Nordic Ecolabeling will be contacted when this work starts so that the Nordic Council of Ministers’ own eco-label (the Nordic Eco-label/the Swan) and the other eco-labels will be well described.” (EM)

“I think you could have a headline more REVALUE where you talk about valuing the makers and give them a pivotal role for developing W2W products and relations between, designer, maker, wearer and communicator. What we see now is how bad products are made, because we don’t put the good product/service based on relations and empathy in the center of our business.” (TH)

“Can you really evaluate the increase in jobs or should you just focus on green growth?

When you write about what you could envision, it does not include number of uses. (MIPS material input per service -approach includes the calculation of use times in environmental evaluation of a product.) Examples do exist of more accurate sizing system like the Masi Company in Finland which has made own sizing for jeans based on Finnish woman measurements (better fit and customer satisfaction). Also, in producer corporate social responsibility box it could be added transparency in all production phases and in ethical marketing box could be added ‘avoiding green washing.’” (KN)

Appendix 2: Eco-label quality requirements

Summary table of quality requirements from three eco-labels for textiles

Parameter Test method	Nordic ecolabeling Version 4.0	EU Ecolabel for textile products Decision of 5 June 2014	Global Organic Textile Standard (GOTS) Version 4.0
Criteria section	3 Quality and functionality requirements 3.1 Product requirements for textiles	4. Fitness for use criteria	2.4.14. Technical quality parameters
Colour fastness to rubbing ISO 105x12	Wet rubbing 2–3 Level 2 is permitted for indigo dyed denim ¹⁶ Dry rubbing Colour fastness for dry rubbing shall be at least level 4. Level 3–4 is permitted for indigo dyed denim The test shall be performed in accordance with ISO 105 X12 or the equivalent ¹⁷	The colour fastness to wet rubbing shall be at least level 2–3. A level of 2 is nevertheless allowed for indigo dyed denim ¹⁸ Colour fastness to dry rubbing The colour fastness to dry rubbing shall be at least level 4. A level of 3–4 is nevertheless allowed for indigo dyed denim ¹⁹	Dry 3–4 Dry for fiber blends 3 Wet 2
colour fastness to perspiration (acid and alkaline) ISO 105 E04	-	3–4 (colour change and staining) 3 (allowed when fabrics are both dark coloured (standard depth > 1/1) and made of regenerated wool) ²⁰	3–4 3 (fiber blends)
Colour fastness to light ISO 105 B02	5 (fabrics that shall be used for furniture, curtains or drapes) For furniture, curtains or drapes, a result of 4 is allowed when the fabric is both light coloured (standard depth < 1/12) and consists of mixes with more than 20% wool or other keratin fibers, or of mixes with more than 20% linen or other bast fibers ²¹	5 (For fabrics intended for furniture, curtains or drapes) 4 (all other products) A level of 4 is nevertheless allowed when fabrics intended for furniture, curtains or drapes are both light coloured (standard depth < 1/12) and made of more than 20% wool or other keratin fibers, or more than 20% linen or other bast fibers ²²	3–4

¹⁶ The requirement does not apply to white products or products that are neither dyed nor printed, or to curtains.

¹⁷ The requirement does not apply to white products, products that are neither dyed nor printed, or to curtains or similar textiles intended for interior decorating.

¹⁸ This criterion does not apply to white products or products that are neither dyed nor printed.

¹⁹ This criterion does not apply to white products or products that are neither dyed nor printed, or to curtains or similar textiles intended for interior decoration.

²⁰ This criterion does not apply to white products, to products that are neither dyed nor printed, to furniture fabrics, curtains or similar textiles intended for interior decoration.

²¹ The requirement does not apply for mattress bolsters and mattress covers.

²² This requirement does not apply to mattress ticking, mattress protection or underwear.

Parameter Test method	Nordic ecolabeling Version 4.0	EU Ecolabel for textile products Decision of 5 June 2014	Global Organic Textile Standard (GOTS) Version 4.0
Dimensional changes during washing and drying ISO 6330 ISO 5077	Wash three times at the temperature that is stated on the product, followed by drying in a tumble dryer unless another drying process is stated on the product ± 2% for curtains and furniture fabrics that are removable and can be washed ± 3% for woven products in cotton and cotton mixes ± 2% for woven products in wool mix and synthetic fibers ± 4% for knitted products ± 6% for chunky knit ± 5% for jersey (Interlock) ± 7% for terry towels and fine rib products ²³	Three washes at temperatures as indicated on the product, with tumble drying after each washing cycle Knitted fabrics ± 4.0% Chunky knit ± 6.0% Interlock ± 5.0% Woven fabrics: – Cotton and cotton mix ± 3.0% – Wool mix ± 2.0% – Synthetic fibers ± 2.0% Socks and hosiery ± 8.0% Bathroom linen, including terry towelling and fine rib fabrics ± 8.0% Washable and removable woven upholstery: – Curtains and furniture fabric ± 2.0% – Mattress ticking ± 3.0% Non-woven fabrics: – Mattress ticking ± 5.0% – All other fabrics ± 6.0%	After washing at 40 °C resp. at 30 °C for animal fiber material and blends thereof. (only valid for garment sector). Knitted/hosiery: max. 8% Woven: max. 3%
Saliva fastness LMBG B 82.10-1	-	-	“FAST” for baby and children’s clothing
Colour fastness to washing ISO 105 C06	3–4 for colour change 3–4 for discoloration ²⁴ Method: a single wash at the temperature that is stated on the product	3–4 for colour change 3–4 for staining ²⁵ Method: single wash, at temperature as marked on the product, with perborate powder	3–4 (Method C1M at 60 °C) 3–4 (animal fiber material and blends thereof: method A1S at 30 °C without use of steel balls)
Pilling Nordic: EN ISO 12945-2 EU: Knitted and non-woven products: ISO 12945-1 Pill box method Woven fabrics: ISO 12945-2 Martindale method	4 (Furniture fabrics)	3 (Non-woven fabrics and knitted garments, accessories and blankets made of wool, wool blends and polyester (including fleece) 3 (Woven cotton fabrics used for garments) 2 (Polyamide tights and leggings)	-

²³ The requirement does not apply to fibers or yarn, products labelled «dry clean only» or similar (if the product is normally labelled in this way) or furniture fabrics which cannot be removed and washed.

²⁴ The requirement does not apply to products that are clearly labelled “dry clean only” or the equivalent (if the product in question is normally labelled in this way), white products, products that are neither dyed nor printed, or for non-washable furniture fabrics.

²⁵ This criterion does not apply to products labelled “dry clean only” or equivalent (in so far as it is normal practice for such products to be so labelled), to white products or products that are neither dyed nor printed, or to non-washable furniture fabrics.

Additional EU requirements to specific product types:

Criterion 23. Wash resistance and absorbency of cleaning products

Cleaning products shall be wash resistant and absorbent according to the relevant testing parameters identified in Tables. The testing specified for absorbency shall not apply to twisted yarn products.

Values and parameters for the wash resistance of cleaning products

Textile cleaning products or type of material	Numbers of washes	Temperature	EN ISO 6630 test reference
Woven and non-woven products for wet cleaning	80	40 °C	Procedure 4N
Microfiber products for dusting	200	40 °C	Procedure 4N
Products deriving from recycled textile fibers	20	30 °C	Procedure 3G
Mops for washing floors	200	60 °C	Procedure 6N
Cloths for washing floors	5	30 °C	Procedure 3G

Values and parameters for the absorbency of cleaning products

Textile cleaning products or type of material	Liquid absorbency time
Products deriving from recycled textile fibers	≤ 10 seconds
Microfiber products for surface and floor cleaning	≤ 10 seconds
Woven and non-woven products for wet cleaning	≤ 10 seconds
Products for washing floors	≤ 10 seconds

Assessment and verification: the applicant shall provide test reports using the following test methods as relevant: EN ISO 6330 and EN ISO 9073-6. Testing according to EN ISO 6330 shall be carried out using washing machine type A for all products and materials.

Criterion 25. durability of function

Finishes, treatments and additives that impart water, oil and stain repellency flame retardancy and easy care (also referred to as non-crease or permanent press) to the textile product when it is in use shall be durable according to the values and parameters set out in sub-criteria 25(a), (b) and (c).

For water, oil and stain repellents consumers shall be provided with guidance on how to maintain the functionality of finishes applied to the product.

Textile fibers, fabrics and membranes that lend the final product intrinsic functional properties are exempt from these requirements.

Assessment and verification: for products with intrinsic properties applicants shall provide test reports demonstrating comparable or improved performance compared with alternatives that may be applied as finishes.

25(a) Water, oil and stain repellent functions

Water repellents shall retain a functionality of 80 out of 90 after 20 domestic wash and tumble dry cycles at 40 °C, or after 10 industrial washing and drying cycles at a minimum of 75 °C.

Oil repellents shall retain a functionality of 3,5 out of 4,0 after 20 domestic wash and tumble dry cycles at 40 °C, or after 10 industrial washing and drying cycles at a minimum of 75 °C.

Stain repellents shall retain a functionality of 3,0 out of 5,0 after 20 domestic wash and tumble dry cycles at 40 °C, or after 10 industrial washing and drying cycles at a minimum of 75 °C.

Industrial washing temperatures may be reduced to 60 °C for garments with taped seams.

Assessment and verification: the applicant shall provide reports from tests carried out according to the following standards, as appropriate to the product:

For all products domestic wash cycles ISO 6330 or industrial laundry cycles ISO 15797 in combination with:

- water repellents: ISO 4920
- oil repellents: ISO 14419
- stain repellents: ISO 22958.

25(b) Flame retardant functions

Washable products shall retain their functionality after 50 industrial wash and tumble dry cycles at a minimum of 75 °C. Non-washable products shall retain their functionality after a soak test.

Assessment and verification: The applicant shall provide reports from tests carried out according to the following standards, as appropriate to the product:

For domestic wash cycles ISO 6330 or commercial laundry cycles EN ISO 10528 both in combination with EN ISO 12138. Where the textile is non-removable BS 5651 or equivalent.

25(c) Easy-care (also referred to as non-crease or permanent press)

Natural fiber products shall achieve an SA-3 fabric smoothness grade and blended natural and synthetic fiber products an SA-4 fabric smoothness grade after 10 domestic wash and tumble drying cycles at 40 °C.

Assessment and verification: the applicant shall provide reports from tests carried out according to the ISO 7768 test method for assessing the smoothness appearance of fabrics after washing.

Appendix 3: Report from the Global Leadership in Sustainable Apparel Symposium

On Tuesday, 29th January 2013 the Antonia Ax:son Johnson Foundation for Sustainable Development hosted a workshop aimed at exploring whether aspects of the SCAP (The Sustainable Clothing Roadmap & Action Plan) model could inform actions at the Swedish, Nordic or European levels. Ninety experts from the Swedish, Nordic and UK apparel industries attended. Participants included business leaders and entrepreneurs, politicians and policy makers, researchers, civil society representatives, media and investors.

The 2013 Symposium: Building a sustainable apparel roadmap for the Swedish apparel industry

- What is the apparel industry's sustainability vision? What could a sustainable Swedish and Nordic apparel industry look like in 2030?
- Back casting from this 2030 vision, what steps do we need to take, what issues need to be solved, to get there?
- What support do companies need from different stakeholders to realize the vision (government, non-governmental organizations, investors, media, research, etc.)?
- What should we prioritize during the next 3 years to help us get there? What should we commit to and how?
- What can we learn from the SCAP model to help us?

Survey

To ensure we did not miss any critical insights or recommendations, SFA sent a follow-up survey. Most of the questions focused on how the Swedish and Nordic region should go further, so if these do not apply to you please feel free to skip them.

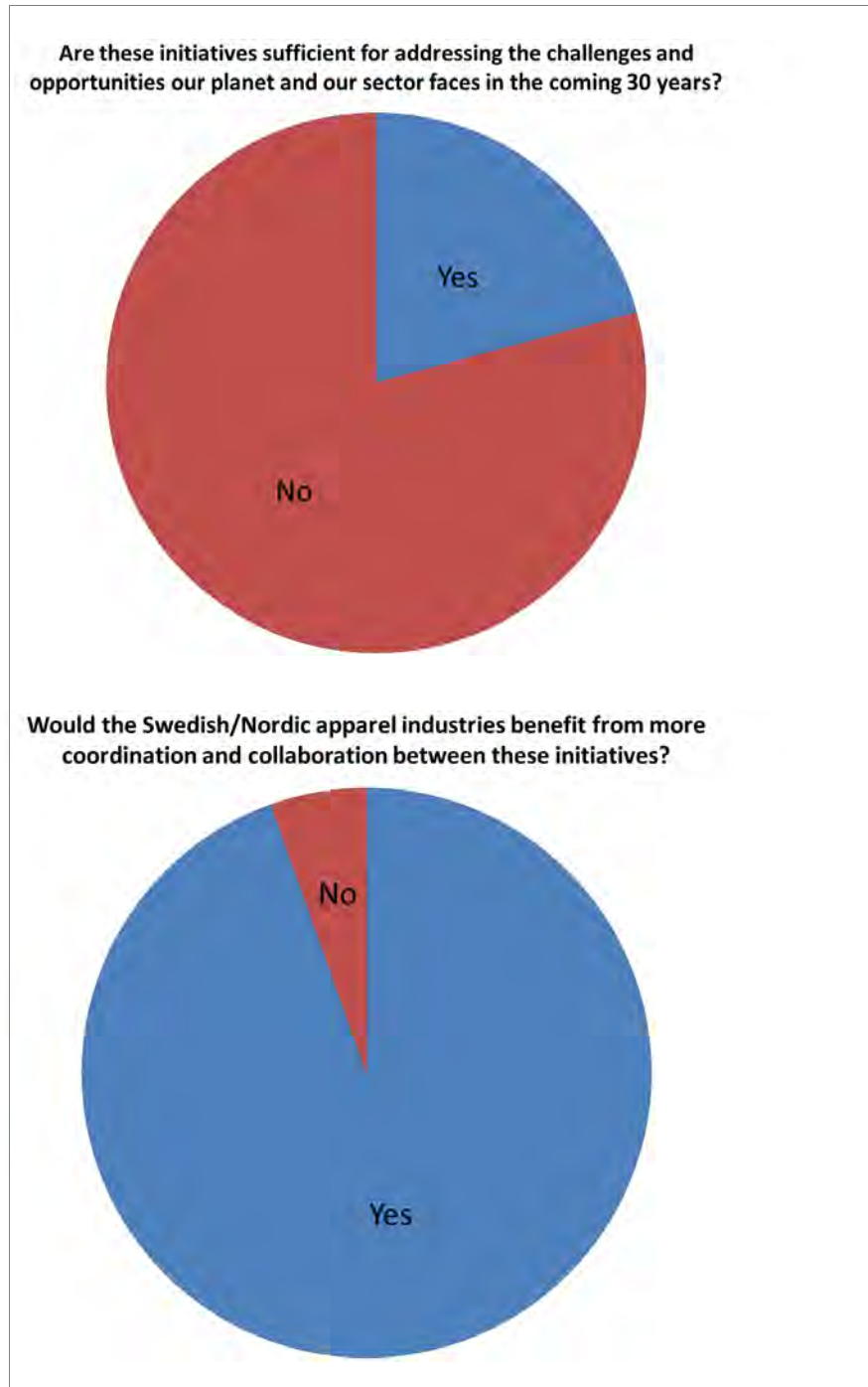
This survey was answered by 52 respondents representing companies, industry organizations, governmental agencies, experts and NGOs, participating in a full-day workshop in Stockholm in January 2013.

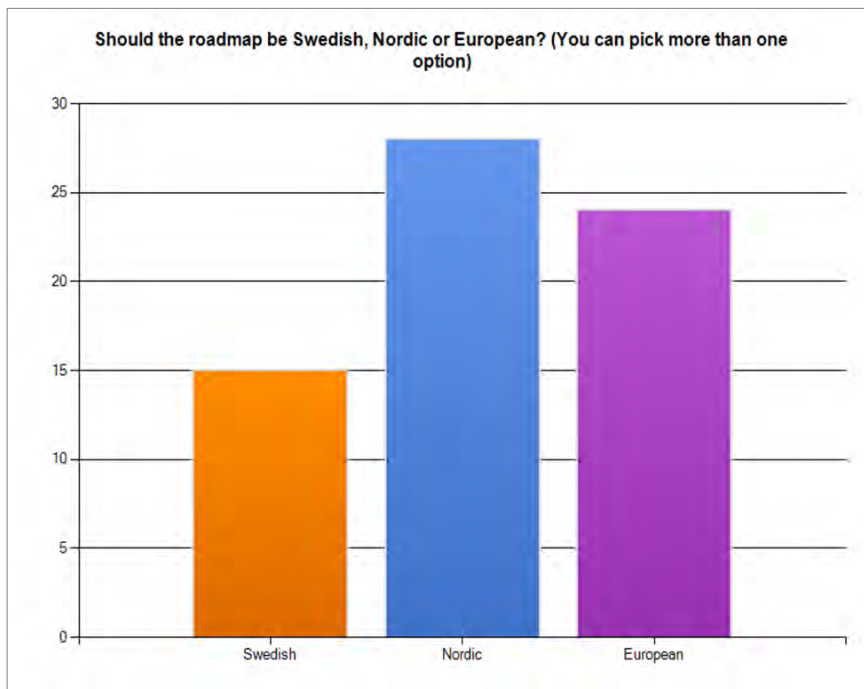
The survey responses should be viewed in the light of a few critical assumptions that were made at the workshop:

- Although there are many very important initiatives addressing sustainability challenges in the apparel sector, these are necessary but not sufficient to ensure the apparel sector survives, thrives and contributes to significant solutions addressing today's sustainability challenges.
- Preparing for the future requires planning with a longer term horizon in mind – not just 5–10 years, but 25 years and beyond.
- A holistic approach is needed where governments, civil society actors, investors, researchers and media create the conditions needed to ensure the apparel industry (companies, entrepreneurs, etc.) develops significant sustainability solutions.

Survey results

There are a number of important international and Nordic initiatives aimed at improving the sustainability performance of the apparel industry:





If you think a roadmap and action plan initiative would be valuable for the industry, what do you think its aims should be (below is a list to help stimulate you)?

- To set goals and targets for the sector and to monitor progress?
- To identify gaps in existing research / commission important research?
- To ensure knowledge exchange and coordination with other national or international initiatives (such as WRAP, SAC, European Union, etc.) takes place?
- To initiate working groups on non-traditional themes, like developing new business models, consumer engagement, etc?
- To identify possible synergies between existing initiatives in order to maximize impact?
- To provide recommendations for sector action, both in the short term (within 5 years) and longer term (within 25 years)?



Please list one key recommendation / idea / commitment the apparel sector should focus on to accelerate its sustainability performance:

A. Set goals & targets to drive change

- Setting targets for the industry will create healthy competition for change.
- A group of leading organisations should come together and set targets and find ways to encourage and increase adaption of tech & biz model innovation.
- Set a target.
- Clear, quantified, industry-level goals that are measured continuously and that reflect the urgency of action that is required according to science.

B. Develop an apparel sector roadmap

- Establish a central platform to provide long and short term recommendations on actions.
- Put a platform together.
- We need to develop a road map for future sustainable fibers and future dyeing methods with less water consumption using less chemicals.

- Follow-through with the ambition and dynamism on display in Stockholm on the 29th and try to develop a roadmap around some key focuses and concerns for the Nordic Clothing industry. For example SCAP focuses on three measures carbon, water and waste across the full lifecycle
- Engage more politicians in working towards sustainability.

C. Take a holistic approach & include true costs

- Do not limit the scope of the work to a set of key target areas but instead take a holistic perspective.
- Apply a more holistic approach to sustainability.
- The apparel sector should find a way to pay the true cost.
- More full costing and transparency throughout the whole supply chain are needed.

D. Improve data collection & information

- Improve supply chain data collection system.
- Develop a list of good practices, and one of bad practices.
- Better information about sustainability in their own garments to consumers. Could be to do it in form of an index, like for instance the SACs-index. Water impact (will have implications for chemical use, community and worker health, water usage and contamination in value chain Reduce waste in all supply chain steps.
- Work towards one standard for measuring sustainability.

E. Invest in research & education

- Start funding experimental (as in trying things out) research in fashion and textiles.
- More research into future sustainable fibers: bio synthetics, crailar. Ex. of new dyeing method: CO₂ dyeing. How to make this accessible for the markets
- Invest in education.
- Implement biotechnology in textile production processes long lasting design (estetiskt och fysiskt), free from haardous substances.
- Address root problems by training (workers) and lobbying (Govts) about fast fashion, human rights and wateruse.

- Commit to honest consumer education and innovation, stop trying to “dodge the bullet” when NGO’s are targeting a sensitive area.
- Communication East/West to ensure up-take and understanding of the problems.

F. Focus on environmental improvements

- Become fueled by 100% renewable energy by 2030 incl the supply-chain.
- Prioritize sustainable agriculture.
- Involve end-of-life aspects already in the moment of creation and design.
- Improve environmental performance by not only reducing impact but by also contributing to a better situation, in producing countries.
- One very important aspect is hazardous chemicals in textiles, the industry should have zero vision for hazardous chemicals.
- Develop sustainable purchasing practices.

G. Support the development of new business models

- Focus on “timelessness”, not on season-to-season. A market whose sole business revolves around marketing insecurity – being out of style – perpetuates unsustainability
- Closed-loop manufacturing Involve the business / finance decision makers in sustainability.
- Develop models for collaborative consumption.
- Explore business models shifting offer from products to services.
- Make sustainability an important owner/management topic in every company.
- Redesign the basic business idea of selling more stuff.

Now please list *one key recommendation or request* to the Swedish / Nordic governments to help the apparel sector accelerate its sustainability performance:

A. Support a road map for the industry

- Fund an initiative like SCAP to get this off the ground.
- Initiate what DEFRA did and give good resources to this.
- Support / finance roadmap process.
- Support a joint effort in launching a road map process for the Nordic Countries.
- Support the development of the Roadmap, which the clothing industry is calling for.
- Create a SCAP model for Sweden.
- Help and be part of centralized platform to provide long and short term recommendations on actions.
- Finance the platform.
- Initiate a global initiative towards 100% renewable energy for the textiles industry in collaboration with key supplier countries (e.g. India), big Nordic corporations, suppliers and a cluster of cleantech entrepreneurs. At least a 10 year timeline from start.

B. Implement legislation

- Require full product life-cycle responsibility.
- Support stronger chemicals restrictions.
- Require carbon labeling.
- Lower tax on service like repair/leasing of clothes.
- Develop a sustainability tax change, i.e. that the polluter's pay principle is enforced, and that it includes social issues as well.
- The government must make the playing field and the rules of the game clear and supportive of with what science says is needed. This the necessary for "true costing".
- Promote the Ruggie framework and that all actors, including governments should take their responsibility in advancing social sustainability.
- It is important to prioritize reuse since they have a tendency to be local and small-scale compared to recycling.
- Support better labeling of garments.

Increase funding & consumer education

- Improve consumer information.
- Support financially sustainability investments of certain (here unidentified) degree and kinds. Could be through research projects where companies work with researchers, like e.g Vinnova company.
- Increase awareness through education.
- Research on societal & business costs for non-compliance, low wages, strikes etc.
- Create more consumer awareness so that the apparel sector can move beyond the market's ignorance.
- A research/innovation platform for the spearheading companies and researchers, to work with sustainable textiles and alternative business models.
- Nordic government can support with platform such as: Innovations center for material/ Knowledge center for chemicals, water etc.
- Knowledge center containing tools accessible for the small company's.
- Provide funds to support the development of the collaborative projects and be the trusted third party between competitors.
- Governments should support the apparel sector with funding and influencing governments in production markets to take their responsibility.
- Co-fund a leadership initiative.
- Support projects and producer responsibility in the supply chain.

Miscellaneous

- Coordinate and integrate sustainability in every ministry.
- Make sure your work is based on already existing industry standards and take part in the public debate by qualifying what is good and bad CSR.
- Set some expectations.
- Forbid companies bigger than 50 employed.
- Increase cooperation.
- Focus on end consumer to increase sustainability demand.
- I was impressed by the level of ambition demonstrated by all the participants in the workshop and my one request would be for this to be maintained!

Appendix 4: Mapping results

Nordic initiatives

Name of initiative	A Nordic strategy for collection, sorting, reuse and recycling of textiles NMC P2
Initiating organization and year	Financed by the Nordic Council of Ministers within the Green Growth Initiative and initiated by the Nordic Waste Group 2013
Weblink	Towards a Nordic textile strategy – Collection, sorting, reuse and recycling of textiles kan laddas ner från NMR:s webbplats (engelsk text) ²⁶
Short description	<p>The overall aim of the project is to increase both reuse and recycling of textiles in order to reduce the environmental impact from textile consumption and increase the competitiveness of the Nordic region. This is to be done by improving the infrastructure for collection, sorting, reuse and recycling of textiles in the Nordic region.</p> <p>The project aims at providing a basis for the incentives and measures that are needed for the development of a recycling capacity within the Nordic countries while at the same time ensuring that the incentives and measures do not undermine the market for the reuse of used textiles.</p>
Geographical coverage	The Nordic region including data from Finland, Denmark, Norway, Sweden and Iceland
Product type addressed	Clothing and household textiles and similar textiles from public and private organisations i.e. hospital linen, uniforms etc. Carpets are not included, nor are technical textiles
Position in value chain	Waste management
Time-frame	June 2013–December 2014
Region(s)	Reduce, Redirect, Evaluate
Focus Area(s)	Reuse and recycling/ Encourage and facilitate local value-chains/ Statistics of textile flows and use

²⁶ <http://dx.doi.org/10.6027/TN2014-540>

Name of initiative	An extended producer responsibility (EPR) system and new business models to increase reuse and recycling of textiles in the Nordic region NMC P3
Initiating organization and year	Financed by the Nordic Council of Ministers within the Green Growth Initiative and initiated by the Nordic Waste Group, 2013
Weblink	EPR systems and new business models Reuse and recycling of textiles in the Nordic region kan laddas ner från NMR:s webbplats (engelsk text) ²⁷
Short description	The aim of the project is to propose policy packages in Nordic countries which would support extended producer responsibility (EPR) systems and innovative business models which promote greater reuse and recycling of used textiles. In addition to reducing environmental impacts such policy packages would also increase the competitiveness of the Nordic region.
Geographical coverage	Nordic region (5 countries)
Product type addressed	Clothing and household textiles and similar textiles from public and private organisations i.e. hospital linen, uniforms etc. Carpets are not included, nor are technical textiles
Position in value chain	Entire value chain
Time-frame	June 2013–December 2014
Region(s)	Reduce, Replace, (Evaluate)
Focus Area(s)	Sustainable business models/ Sustainable product design/ Consumer/citizen behavior/Reuse and recycling/ Low impact production chains/ Producer corporate social responsibility / (Statistics of textile flows and use)

²⁷ <http://dx.doi.org/10.6027/TN2014-539>

Name of initiative	LAUNCH Nordic
Initiating organization and year	LAUNCH International 2014
Weblink	http://www.launch.org/nordic
Short description	<p>A global innovation platform by IKEA, Novozymes, Kvadrat, 3GF, Danish Ministry of the Environment & The Fund for Green Business Development – but internationally LAUNCH unites global industry leaders and regional innovators to identify and scale sustainable innovations in materials. LAUNCH international is a partnership between NASA, NIKE, The U.S. Agency for International Development (USAID) & The U.S. Department of State.</p> <p>The LAUNCH Accelerator is a 6-month program designed to strengthen Innovator strategies, expand their networks and resources, and to amplify their potential for global impact. LAUNCH Nordic represents concrete activities, as well as a forum for discussions.</p> <p>Nine companies have been chosen for the next phase: BETTER COTTON INITIATIVE (Switzerland), DUTCH AWEARNESS (Netherlands), GREEN LEATHER CRUST (Germany), MONOCEL (Norway), NANO-DYE (USA), PURE WASTE (Finland), RE:NEWCELL (Sweden), THE EXTENDED CLOSED LOOP (Germany, Student Innovator), VIGGA.US (Denmark).</p>
Geographical coverage	Nordic and Global
Product type addressed	All textiles and apparel
Position in value chain	Design, sourcing, production, active lifetime (least), waste management
Time-frame	On-going until projects are chosen and funded
Region(s)	Reduce, potentially Redirect. Evaluate
Focus Area(s)	Depends entirely on which projects are chosen in September

Name of initiative	NICE – Nordic Initiative Clean & Ethical
Initiating organization and year	A joint project initiated by Nordic Fashion Association I 2008. NFA became a formal organization in 2013, with 11 Nordic trade and fashion organizations representing all five Nordic countries
Weblink	http://nordicfashionassociation.com/nice
Short description	NFA/NICE represent concrete activities, knowledge generating activities and cooperative efforts/platforms for discussions. When originally five trade organizations joined forces on NFA and kick-started the NICE project, the aim was for the Nordic region to take a leading role in sustainable fashion. Since then, several more organizations have come on board, but there are no set goals and NFA works project-based depending on project-funding. The Norwegian government paid for the web-site which is both business and consumer-facing, advising on good choices throughout the value chain. A monthly newsletter and social media (Facebook and Twitter) are tied to the web-feed. Research and other projects have separate web-areas. NFA also is involved in consulting for external projects, like CleverCare®. In cooperation with SFA, NFA wants to build better education for the industry, preferably with eLearning. A second project, New Nordic Fashion, with NICE as the foundation, aims to combine lectures and exhibits/fashion shows with trade events, modelled after New Nordic Cuisine. NFA and the NICE platform have built strategic alliances globally, and are involved in the development of the Higg Index, among other things. For businesses and designers, NFA and NICE have offered a platform for cooperation and inspiration. Together with the UN Global Compact, NFA developed the first sector specific GC.
Geographical coverage	Nordic and global
Product type addressed	All textiles and apparel
Position in value chain	All
Time-frame	Ongoing
Region(s)	All 4 Rs, Replace, Reduce, Redirect, Rethink, some Evaluate
Focus Area(s)	Sustainable business models, Sustainable product design, Consumer/citizen behavior, Reuse and recycling, Low impact production chains, Producer corporate social responsibility, Sustainable private and public procurement, Sustainable private and public use, Encourage and facilitate local value-chains, Better textiles and Ethical Marketing

Name of initiative	Nordic Ethical Trading Framework
Initiating organization and year	Collaboration between the Danish Ethical Trade Initiative and Initiative for Ethical Trade Norway (but it seems lately also Pro Ethical Trade Finland), supported by Nordic Council, 2014?
Weblink	http://www.dieh.dk/dyn/resources/News_Content/file/2/152/1390426130/nordic-ethical-trading-framework-_flyer.pdf
Short description	The Nordic Council of Ministers has provided support to the start-up of the Framework as part of the implementation of the Nordic Strategy on CSR. Unclear how far along this cooperation is, and what the goal is and what type of activities (concrete, knowledge-generating) or platforms will follow. Also unclear un funding.
Geographical coverage	Nordic: Denmark and Norway, possibly Finland
Product type addressed	All textiles/apparel (but also other product groups outside textiles)
Position in value chain	Sourcing and production
Time-frame	On-going
Region(s)	Reduce, Replace
Focus Area(s)	Producer corporate social responsibility, Sustainable private and public procurement

Name of initiative	Nordic Swan Ecolabel
Initiating organization and year	Nordic Council of Ministers in 1989
Weblink	http://www.nordic-ecolabel.org/
Short description	The Nordic Swan is the official ecolabel of the Nordic countries with the purpose of providing an environmental labeling scheme that would contribute to a sustainable consumption. It is a voluntary, positive ecolabeling of products and services. The Nordic Ecolabel was also initiated as a practical tool for consumers to help them actively choose environmentally-sound products. It is an ISO 14024 type 1 ecolabeling system and is a third-party control organ. The criteria for textiles were just revised, after a hearing in the Nordic countries. NCM's Gruppen för -hållbar konsumtion och produktion (HKP) has together with Ecolabel/The Nordic Swan initiated theproject The Potential for Green Textile sourcing from Tirupur (2012) EU Ecolabel and ISO 14001 based cluster. Recently The Nordic Swan in cooperation with Virke (NO), Finatex (FI), Dansk Mode & Textil (DK), and the Danish Federation of Small and Medium Sized Enterprises (DK) held speed-dating between Nordic companies and Indian production companies from Tirupur.
Geographical coverage	Nordic and global
Product type addressed	All textiles and apparel. Also other product-types and services
Position in value chain	Sourcing, production, active life-time
Time-frame	On-going
Region(s)	Reduce, some Evaluate
Focus Area(s)	Low impact production chains, Producer corporate social responsibility, Sustainable private and public procurement

Name of initiative	North Atlantic Sheep and Wool Conference
Initiating organization and year	Private initiative since 2010
Weblink	http://www.northatlanticnativesheepandwoolconference.com/
Short description	Concrete activity in the form of a yearly conference on wool issues in the North Atlantic region, addressing issues around the old sheep breeds. This year's conference will address wool processing. Also cooperative effort and platform for discussion. Knowledge-generation through mapping of local value-chains. Launching a Wool Week to educate consumers and artisans this fall (2014).
Geographical coverage	Faeroes, Greenland, Iceland, Hebrides, Orkney, Shetland and Norway
Product type addressed	All textiles and apparel (limited to wool, including raw material and yarns.)
Position in value chain	Sourcing, production, design, distribution Waste management (of wool as a raw material)
Time-frame	On-going
Region(s)	Redirect
Focus Area(s)	Encourage and facilitate local value-chains

Name of initiative	Redesign (N/A)
Initiating organization and year	Fretex and Frelsens Hær (Salvation Army) 2010/later Red Cross Sweden's cooperation with Västra Götaland region.
Weblink	http://www.redesign.nu/ http://nettbutikk.fretex.no/itemlist.aspx?regid=4 http://epi.vgregion.se/sv/studio redesign/
Short description	Norway and Denmark have established redesign studios that make use of certain collected apparel or materials to produce new products for sale, a similar system is in place (Studio Redesign) in Västra Götaland in Sweden.
Geographical coverage	Municipal to Nordic, depending on scale
Product type addressed	All textiles and apparel
Position in value chain	Waste prevention
Time-frame	On-going
Region(s)	Reduce
Focus Area(s)	Reuse and Recycling, Low Impact Value Chains

Name of initiative	The #GooDeed app
Initiating organization and year	Danish Cultural Institute in Latvia, along with NICE, Creativity Lab Estonia and VTT Finland. 2014
Weblink	www.culturability.lv
Short description	Culturability BSR (Baltic Sea Region) was funded by Norden to look at cultural enterprises in the Baltic Sea region, and six projects have been picked that will be further developed in Copenhagen in October, #GooDeed app being one related to textiles and sustainable behavior. Based on an EU application initiated by VTT Finland, the idea is to use ICT (social media/app/networking) to encourage repair, swapping, wardrobe stewardship, etc. The #GooDeed app is a concrete activity, with knowledge-generation inherent in the process, and Culturability BSR has offered a platform for discussion and cooperation. The Goodeed Foundation, designers Reet Aus (EE) and Nina Skarra (NO) and Uniforms for the Dedicated (SE) are involved in the project.
Geographical coverage	Nordic and Baltic Sea region, possibly U
Product type addressed	All textiles and apparel
Position in value chain	Active lifetime, waste management
Time-frame	Just starting out
Region(s)	Replace, Redirect, Rethink
Focus Area(s)	Sustainable business models, Consumer/citizen behavior, Sustainable private and public use, Encourage and facilitate local value chains, Better textiles

Name of initiative	The Nordic textile reuse and recycling commitment (NMC P1)
Initiating organization and year	Financed by the Nordic Council of Ministers within the Green Growth Initiative and initiated by the Nordic Waste Group, 2013
Weblink	Towards a new Nordic textile commitment Collection, sorting, reuse and recycling kan laddas ner från NMR:s webbplats (engelsk text)
Short description	The aim of the project is to develop a voluntary commitment system including a code of conduct for organisations collecting, sorting, reusing, recycling and otherwise managing used textiles so that companies, municipalities and consumers can be sure of an economic, social and environmentally sustainable management of used textiles. The project aims at having several textile businesses and charitable organisations involved in the collection, sorting, reuse and/or recycling of used textiles entering into a commitment by the end of the project. The commitment should include targets for reuse and high-grade recycling to ensure that the management of used textiles is carried out in accordance with the waste hierarchy as far as possible.
Geographical coverage	i.e. global, individual Nordic country (which?), or only single city/ municipality (which?)
Product type addressed	Clothing and household textiles and similar textiles from public and private organisations i.e. hospital linen, uniforms etc. Carpets are not included, nor are technical textiles
Position in value chain	Waste management
Time-frame	June 2013–December 2014
Region(s)	Reduce, Replace
Focus Area(s)	Consumer/citizen behavior/ Reuse and recycling / Producer corporate social responsibility

Name of initiative	Trendsales – on-line marketplace for used items
Initiating organization and year	Trendsales, 2002
Weblink	www.trendsales.dk www.trendsales.se www.trendsales.no www.trendsales.fi
Short description	Trendsales is a largest fashion bazaar where users can purchase, sell and exchange more than 150 different categories of amongst other things, clothes, shoes, accessories, household linen etc. Most of the goods are second-hand, but many individuals and also companies sell home-made and new items. The target group is primarily women aged 18–32 years, but users are of all ages and both sexes.
Geographical coverage	Was originally Danish, but is now spread to Norway, Sweden and Finland (and Germany)
Product type addressed	All apparel and home textiles
Position in value chain	Active lifetime
Time-frame	Ongoing since 2002
Region(s)	Replace
Focus Area(s)	Consumer/citizen behavior and Sustainable business models

Name of initiative	VikingGold
Initiating organization and year	Norwegian Fashion Institute with SIFO, UiO, Iceland's design Council, Icewool, CBS and NICE, 2013, financed by KreaNord
Weblink	http://nordicfashionassociation.com/project/vikinggold
Short description	The goal of the project is to develop high quality design projects based on inspiration from the Viking textiles. The aim is to simultaneously increase the attention and pride for our older textile history, show-casing the possibilities inherent in cooperation between archeological research and modern design. As wool from old sheep breeds is often burned or otherwise disposed of, creating a waste problem, the project aims to find new uses for a valuable resource. VikingGold involves concrete activity, knowledge-generating activity and platforms for discussion/cooperation.
Geographical coverage	Nordic and North-Atlantic, possibly global (US)
Product type addressed	All textiles and apparel (but limited to wool, including yarns)
Position in value chain	Design, sourcing, production, marketing, distribution, active life-time
Time-frame	2013–2015
Region(s)	Reduce, Redirect, Rethink – possibly Replace
Focus Area(s)	Low impact production chains, Encourage and facilitate local value-chains, Better textiles

Danish

Name of initiative	Byttemarkeder
Initiating organization and year	Lama Juma and Nicholas Block, 2012
Weblink	http://byttemarked.wordpress.com/
Short description	Swap markets are pop-up events where citizens meet up and swap personal items. The rules are very simple: you bring what you do not want anymore and you take what you would like. The items can be anything, but they are often clothes. At first the swap markets were arranged by volunteers, but in 2013 two persons got funding from the Danish EPA to set-up a task-force for spreading the concept to all Danish municipalities. The work included creating a blog and nation-wide calendar where interested citizens can search for the next swap market near themselves, learn how to set up their own swap market and in general meet up with other like-minded.
Geographical coverage	Denmark
Product type addressed	All textiles, but clothing in particular
Position in value chain	Active lifetime
Time-frame	Ongoing since 2012
Region(s)	Replace
Focus Area(s)	Reuse

Name of initiative	Chare
Initiating organization and year	Danish Refugee Council (Dansk Flygtningehjælp), 2014
Weblink	www.chareroom.dk
Short description	Chare is a physical clothing library, where members can borrow clothes for two weeks at a time. The library is supplied with women's clothes by a range of Danish designers. In addition, it is possible for privates to donate items of good quality and style. Membership is DKK 159 per month. In addition members pay for the cleaning of the borrowed clothes. Chare is financially supported by Puljen til grønne ildsjæle. It is run partially by volunteers and partially by the Danish charity Danish Refugee Council.
Geographical coverage	Copenhagen, Denmark
Product type addressed	Women's clothes
Position in value chain	Active lifetime
Time-frame	Ongoing since 2014
Region(s)	Replace
Focus Area(s)	Consumer/citizen behavior and Sustainable business models

Name of initiative	Copenhagen Fashion Summit
Initiating organization and year	Nordic Fashion Association (NFA), 2009
Weblink	http://www.copenhagenfashionsummit.com/
Short description	<p>Copenhagen Fashion Summit is the world's largest event on sustainability in fashion. This event is where leading voices in the world of fashion, luxury, business and enterprise meet to discuss the fashion industry's social and environmental responsibility and solutions.</p> <p>The overall purpose of the Fashion Summit and the initiatives behind is to create a movement in the fashion industry, and the Copenhagen Fashion Summit strives to serve as an inspiration for solutions and opportunities.</p> <p>The Fashion Summit has been granted funding from the Danish Business Authority and the City of Copenhagen.</p>
Geographical coverage	Arranged by NFA but held in Copenhagen
Product type addressed	All textiles
Position in value chain	Aiming at the entire value chain, but designers, producers, marketers and distributors in particular
Time-frame	Ongoing since 2009
Region(s)	Reduce
Focus Area(s)	Many regions and focus areas could be targeted, but Low impact production chains and Producer corporate social responsibility are particularly relevant

Name of initiative	Copenhagen take-back scheme
Initiating organization and year	Danish Fashion Institute (DAFI), 2013
Weblink	http://groenomstilling.erhvervsstyrelsen.dk/cases/655039
Short description	The Copenhagen take-back scheme is a project that has been created to develop a model for a common Danish take-back scheme for textiles. By including both producers and collectors, the project will test four different types of models in the four largest Danish cities. When the test period is complete, the aim is to implement a successful scheme nationally, based on the experiences made during the test period. The end result is expected to be an increase in the take-back rate from 45% to 65%. The project was granted funding during autumn 2013 from the Green Fund for Business Development under the Danish Business Authority.
Geographical coverage	The test-phase is local (i.e. four municipalities), but the aim is to spread the idea nationally (in Denmark)
Product type addressed	All textiles are included in the model
Position in value chain	Waste management
Time-frame	Project funding ends in July 2015, but the aim is, that the project will continue
Region(s)	Reduce
Focus Area(s)	Reuse and recycling

Name of initiative	Curves Ahead ²⁸
Initiating organization and year	Kristine Høeg og Camilla Momme, 2014
Weblink	http://curvesahead.dk/
Short description	Curves ahead is a Danish on-line magazine for plus-size women. It is a meeting place for women who wish to see the latest trends transformed into plus-sizes and it gives guides to (web)shops with fashionable stylish plus-size clothing. Two plus-size journalists has launched the website.
Geographical coverage	Denmark
Product type addressed	Plus-size clothing for women
Position in value chain	Active lifetime
Time-frame	Ongoing since 2014
Region(s)	Rethink
Focus Area(s)	Better textiles

²⁸ We do not have a full overview of similar initiatives in other countries as they have not had main focus on environmental aspects.

Name of initiative	Danish textile partnerships
Initiating organization and year	Danish EPA, 2014
Weblink	
Short description	The Danish EPA has initiated two partnerships on reducing chemicals in the textile value chain and on better/ sustainable cotton. An initial workshop in May, 2014 decided on which more specific themes, which the partnerships should work with. EPA decided to continue with the partnership in reducing chemicals in the textile value chain but not better cotton.
Geographical coverage	Denmark
Product type addressed	All textiles
Position in value chain	Production
Time-frame	Ongoing since 2014
Region(s)	Reduce
Focus Area(s)	Low impact production chains

Name of initiative	Ethical Charter
Initiating organization and year	Danish Fashion Institute and Landsforeningen mod Spiseforstyrrelser og Selvskade (national association against eating disorder and self-harm), 2013
Weblink	http://danishfashioninstitute.dk/da/node/583
Short description	The Ethic Charter for the Danish fashion industry was created in 2007. In 2013 it was updated by Danish Fashion Institute and Landsforeningen mod Spiseforstyrrelser og Selvskade (national association against eating disorder and self-harm). The ethical charter contains guidelines for the Copenhagen Fashion Week regarding a lower age-limit for models, on nutritious and healthy diet backstage and salary for the model during shows.
Geographical coverage	Denmark
Product type addressed	Fashion
Position in value chain	Marketing
Time-frame	Ongoing since 2013
Region(s)	Rethink
Focus Area(s)	Ethical marketing

Name of initiative	Herningprojektet
Initiating organization and year	Herning Kommune, 2014
Weblink	http://www.herning.dk/om-kommunen/projekter/nye-cirkulaere-forretningsmodeller
Short description	The municipality of Herning has decided to focus on the municipal procurement of textile products, workwear used by employees within the municipality and the textile service industry. They have therefore decided to build a circular business model, which means that they will attempt to include reuse and recycling in the entire value chain for the textile products which the municipality uses.
Geographical coverage	Municipality of Herning. The aim is to spread the idea of circular thinking to other municipalities and businesses in the region (Region midt)
Product type addressed	Professional workwear and other types of textiles used in the public institutions of the municipality
Position in value chain	Ideally the entire value chain
Time-frame	Ongoing since 2014
Region(s)	Reduce and Replace
Focus Area(s)	Sustainable business models

Name of initiative	Innovation network
Initiating organization and year	Ministry of Higher Education and Science, 2014
Weblink	http://innonetlifestyle.com/
Short description	Innonet Lifestyle – Interior & Clothing is a Cluster under the Ministry of Higher Education and Science. Their main purpose is to promote growth and innovation in the home and clothing sectors and the creative industries. They do that by identifying, communicating and acting as a repository for new knowledge and acting as a link between businesses and research and knowledge institutions.
Geographical coverage	Denmark
Product type addressed	All textiles
Position in value chain	Entire value chain
Time-frame	Ongoing since 2009
Region(s)	Could be all of the 4 Rs depending in the knowledge which is produced/promoted. It is however unknown where the project is developing
Focus Area(s)	-

Name of initiative	KompetenceCenter Haderslev
Initiating organization and year	Haderslev Kommune
Weblink	http://www.haderslev.dk/borger/job-og-uddannelse/aktivering/kompetencecenter-haderslev/v%C3%A6rksteder/v%C3%A6rkstederne-i-vojens
Short description	The centre in Vojens hires unemployed people in the municipality for various tasks. One is to sort used textiles and cut them into industrial rags.
Geographical coverage	The municipality of Haderslev
Product type addressed	Used textile
Position in value chain	Waste management
Time-frame	Ongoing
Region(s)	Reduce
Focus Area(s)	Reuse and recycling

Name of initiative	Mapping projects on chemical use in textiles
Initiating organization and year	Danish EPA, 2011–2014
Weblink	http://mst.dk/service/publikationer/publikationsarkiv/2014/mar/kortlaegning,-sundheds-og-miljoevurdering-af-flammehaemmere-i-tekstiler/ http://www2.mst.dk/udgiv/publikationer/2011/09/978-87-92779-37-3.pdf http://mst.dk/service/publikationer/publikationsarkiv/2013/jan/kortlaegning-samt-miljoe-og-sundhedsmaessig-vurdering-af-nonylphenol-og-nonylphenoethoxylater-i-tekstiler/
Short description	The Danish EPA has published a number of mapping projects on chemical use in textiles
Geographical coverage	Denmark
Product type addressed	All textiles
Position in value chain	Entire value chain
Time-frame	2011–2014
Region(s)	Evaluate
Focus Area(s)	Lifecycle analyses

Name of initiative	Preventing and recycling textile waste in Denmark
Initiating organization and year	Danish EPA
Weblink	http://cri.dk/projects/preventing-and-recycling-textile-waste-in-denmark
Short description	In autumn 2012 the Danish EPA initiated a project with the objective of developing an idea catalogue for better preventing and recycling of textile waste in Denmark. Ideas for improved waste prevention and recycling were gathered from key stakeholders in the textiles. These included designers, textile producers and importers, fashion brands, retailers, laundry services, local and regional authorities and the second hand clothing branch. The actors were invited to small dynamic dialogue meetings. Ideas resulting from these meetings have been gathered into a draft idea catalogue which was discussed at a large stakeholder seminar at the end of February 2013. The idea catalogue was finalised, and is now being considered by the EPA for inclusion in part 2 of the national resource strategy.
Geographical coverage	Denmark
Product type addressed	All textiles
Position in value chain	Entire value chain
Time-frame	2012–2013
Region(s)	Replace and Reduce
Focus Area(s)	Sustainable business models, Sustainable product design, Consumer/citizen behavior, Reuse and recycling, Producer corporate social responsibility, Sustainable private and public procurement, Sustainable private and public use

Name of initiative	Project Handmade 2014 ²⁹
Initiating organization and year	Private person, unknown
Weblink	http://projecthandmade2014.wordpress.com/
Short description	Project Handmade is a blog started by a young Danish woman. The blog describes her year with no shopping and only handmade and/or redesigned clothing for herself and her two children.
Geographical coverage	Denmark
Product type addressed	Women's and children's wear
Position in value chain	Production and active lifetime
Time-frame	2014
Region(s)	Replace and Redirect
Focus Area(s)	Consumer/citizen behavior and encouraging and facilitating local value chains

²⁹ This type of initiatives have not been registered in the other Nordic countries.

Name of initiative	Re-Second
Initiating organization and year	Re-Second, 2012
Weblink	www.resecond.com
Short description	ReSecond is a shared walk-in closet where women can share dresses of good quality. For DKK 139 per month in subscription, members can get access to the shared walk-in closet where they can swap dresses as often as they like.
Geographical coverage	There are stores in Denmark's two largest cities (Copenhagen and Aarhus)
Product type addressed	Women's dresses
Position in value chain	Active lifetime
Time-frame	Ongoing since 2012
Region(s)	Replace
Focus Area(s)	Consumer/citizen behavior and Sustainable business models

Name of initiative	Share Your Closet – online shared wardrobe
Initiating organization and year	Share Your Closet, 2012
Weblink	www.shareyourcloset.dk
Short description	Share Your Closet is an on-line clothing library where women can share clothes, shoes and accessories with each other. Share Your Closet is an internet-platform where members of the community can upload pictures of items they do not use themselves and thus wish to share with others. For every item which is borrowed to another member, the member receives a point for which they can borrow another item. The system is thus money-free, but still provides an incentive to share good-quality and attractive items.
Geographical coverage	Denmark
Product type addressed	Womens clothes, shoes and accessories
Position in value chain	Active lifetime
Time-frame	Ongoing since 2012
Region(s)	Replace
Focus Area(s)	Consumer/citizen behavior and Sustainable business models

Name of initiative	The Fabric Source
Initiating organization and year	Nordic Fashion Association, 2014
Weblink	http://nordicfashionassociation.com/content/fabric-source
Short description	The Fabric Source is the first Nordic sustainable fabric platform, created for the fashion- and textile industry. This is a so-called fabric library, where interested actors like designers, product managers and buyers can view sustainable materials. When the library was opened it contained 1,000 samples from 30 countries. The project is a joint initiative lead by the Danish Fashion Institute (DAFI), under Nordic Initiative, Clean and Ethical (NICE) in close collaboration with leading partners within the textile industry. The Fabric Source was granted funding during autumn 2013 from the Green Fund for Business Development under the Danish Business Authority.
Geographical coverage	Nordic
Product type addressed	All textiles (sustainable fabrics)
Position in value chain	Design
Time-frame	Ongoing since 2014
Region(s)	Reduce
Focus Area(s)	Low impact production chain

Name of initiative	Vigga – leasing of baby- and children’s wear ³⁰
Initiating organization and year	Vigga Svensson, 2014
Weblink	No website as yet
Short description	Vigga Svensson, a baby- and children’s clothes designer, has decided to start up a company that leases out baby- and children’s clothes. Members/parents that subscribe to receiving a package of basic clothes for their baby. Once the baby has outgrown this package of clothes, the package is returned and exchanged for a package in a larger size. In this way the parents subscribe to baby clothes that always fit, rather than owning clothes which has to be replaced regularly. The business model was granted funding during autumn 2013 from the Green Fund for Business Development under the Danish Business Authority.
Geographical coverage	Unknown (presumably within Denmark)
Product type addressed	Baby- and children’s wear
Position in value chain	Distribution and active lifetime
Time-frame	Unknown
Region(s)	Replace
Focus Area(s)	Consumer/citizen behavior and Sustainable business models

³⁰ This type of initiatives have not been registered in the other Nordic countries.

Swedish

Name of initiative	ChemSec
Initiating organization and year	Swedish Society for Nature Conservation, WWF Sweden, Nature and Youth and Friends of the Earth Sweden, 2002
Weblink	http://www.chemsec.org/
Short description	The tool, SUBSPORT, is an online platform giving guidance on how to find safer alternatives to some of the most hazardous chemicals in use worldwide. It contains numerous practical real-case examples from companies and others on successful substitution efforts. They are about to launch a new tool for phasing out hazardous chemicals in textile products.
Geographical coverage	Swedish
Product type addressed	all textiles
Position in value chain	Sourcing, Production
Headline focus area(s)	Reduce
Sub-focus area(s)	Low impact production chains & producer CSR

Name of initiative	Cooperation Åhléns and Myrorna
Initiating organization and year	Åhléns and Myrorna, 2011
Weblink	http://www.ahlens.se/press-start/Ahlens-och-Myrorna-i-samarbete-foer-ateranvaendning-av-klaeder
Short description	Åhléns gave their customers the option to submit the clothes they no longer use at Åhléns during three days in 2011. The initiative was carried out together with Myrorna. In return for its contribution, everyone who submitted clothes was given a voucher at Åhléns.
Geographical coverage	Sweden
Product type addressed	Apparel
Position in value chain	Waste management
Headline focus area(s)	Reduce
Sub-focus area(s)	Reuse and recycling

Name of initiative	F3 Function Future Fashion
Initiating organization and year	University of Borås, 2011
Weblink	http://www.hb.se/en/Research/Programmes/F3---Fashion-Function-Futures/
Short description	The research and development program F3 – Fashion Function Futures at the University of Borås aims to develop new knowledge on the constituents of the textile value chain and the special characteristics of the fashion industry.
Geographical coverage	Sweden
Product type addressed	All textiles (?)
Position in value chain	Design, Sourcing, Production, Active lifetime, Waste management
Headline focus area(s)	Reduce
Sub-focus area(s)	Sustainable product design, Consumer/citizen behavior, Reuse & Recycling, Encourage and facilitate local value-chains

Name of initiative	Fair Trade Center
Initiating organization and year	Fair Trade Center
Weblink	http://www.fairtradecenter.se/node/188
Short description	Fair Trade Center is a Swedish non-governmental organization promoting consumer and company awareness of social and environmental responsibility. Focus within the textile industry is on living wages.
Geographical coverage	Swedish
Product type addressed	Apparel
Position in value chain	Sourcing, production, marketing
Headline focus area(s)	Reduce (Rethink)
Sub-focus area(s)	Producer CSR, Ethical marketing

Name of initiative	Fashion Talks
Initiating organization and year	Association of Swedish Fashion Brands and Antonia Ax:son Johnson Foundation for Sustainable Development
Weblink	http://www.asfb.se/Projekt
Short description	Fashion Talks are recurring seminars and workshops where areas of interest and questions about the fashion industry are discussed and analyzed. Along with Antonia Ax: son Johnson Foundation for Environment and Development are questions about fashion and sustainable development highlighted in a number of events.
Geographical coverage	Sweden
Product type addressed	Apparel
Position in value chain	All
Headline focus area(s)	Reduce
Sub-focus area(s)	Depending on discussion theme

Name of initiative	ForTex Innventia
Initiating organization and year	Södra Cell, Kiram AB, H & M and Ikea, Innventia, SP (which coordinates) and SwereaIVF, 2012
Weblink	http://www.innventia.com/en/Projects/Ongoing-projects/ForTex/
Short description	The goal of Fortex is to manufacture textile fibers from Swedish forest products in an eco- and cost-effective manner. The idea is to make use of the facilities and equipment available in today's pulp mills and to integrate this with facilities for fiber spinning.
Geographical coverage	Sweden
Product type addressed	All textiles
Position in value chain	Waste management
Headline focus area(s)	Reduce
Sub-focus area(s)	Reuse and recycling

Name of initiative	FW:Learning
Initiating organization and year	Sustainable Fashion Academy, Swerea IVF and Lexicon Interactive
Weblink	
Short description	FW:Learning – The next generation training tool for apparel supply chains SFA and partners is running the research and innovation project “FW:Learning” in the area of supply chain training and chemical management, with funding from the Swedish innovation agency, VINNOVA. The project is expected to result in a tested prototype designed for education in chemical management in textile supply chains.
Geographical coverage	Sweden
Product type addressed	Textiles
Position in value chain	See diagram above
Region(s)	Reduce
Focus Area(s)	Low impact production chains, producer CSR

Name of initiative	H&M & ELLE Conscious award
Initiating organization and year	H&M, ELLE
Weblink	
Short description	The award was established by H&M and ELLE to encourage and reward fashion companies actively involved with sustainability. H&M wish to inspire more fashion companies to work more sustainable.
Geographical coverage	Swedish
Product type addressed	Apparel
Position in value chain	Marketing & Design
Headline focus area(s)	Replace (Reduce)
Sub-focus area(s)	Sustainable product design, low impact production chains

Name of initiative	Hållbar Butik
Initiating organization and year	The Swedish Retail and Wholesale Development Council fund and Formas, 2010
Weblink	http://www.hur.nu/forskning/hallbar_butik_2
Short description	The Swedish Retail and Wholesale Development Council fund along with Formas the research program "Sustainable Store". The goal of the program is to find solutions for increasing trade-economic-, social- and ecological sustainability.
Geographical coverage	Sweden
Product type addressed	All textiles
Position in value chain	Distribution
Headline focus area(s)	Replace (Reduce)
Sub-focus area(s)	Sustainable business models, Low impact production chains

Name of initiative	ISH Ideell Second Hand
Initiating organization and year	Swedish Charity organizations such as Myrorna, Stadsmissionen and Swedish Red Cross
Weblink	http://www.secondhand.se/
Short description	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 tons of textiles and 5,000 tons of hard products. In 2011 the total sales of Ideell Second Hand were about 895 million SEK. A key criteria to be part of ISH is to have a 90-account ensuring being a registered charity in Sweden.
Geographical coverage	Sweden
Product type addressed	All textiles
Position in value chain	Waste management
Headline focus area(s)	Reduce
Sub-focus area(s)	Reuse and recycling

Name of initiative	Kemikaliegruppen (Swerea)
Initiating organization and year	Swerea IVF
Weblink	http://extra.ivf.se/kemi/aboutUs.asp
Short description	Through membership in "Chemicals Group at Swerea IVF", which caters to the textile and / or electronics company, offers access to chemical databases, meetings with industry peers, but also support and help to deal with the legislation in the field.
Geographical coverage	Sweden
Product type addressed	Textiles, apparel, home textiles, professional workwear/uniforms, formal wear, children's clothes etc.
Position in value chain	Design, Sourcing & Production
Headline focus area(s)	Reduce
Sub-focus area(s)	Low impact production chains & producer CSR

Name of initiative	Lånegarderoben
Initiating organization and year	KREATIVET, 2010
Weblink	http://www.lanegarderoben.se/
Short description	Lånegarderoben serves as a library where you can borrow clothes instead of books. The idea is to be able to renew the wardrobe without contributing to increased consumption.
Geographical coverage	Sweden
Product type addressed	Apparel
Position in value chain	Distribution, Active lifetime, waste management
Headline focus area(s)	Replace
Sub-focus area(s)	Sustainable Business models, consumers /citizen behavior

Name of initiative	Malmö Fair Fashion City
Initiating organization and year	City of Malmö the Swedish national Fairtrade initiative, 2006
Weblink	http://www.fairtradetowns.org/resources/malmo-swedens-first-fairtrade-city/
Short description	Through cooperation with the City of Malmö the Swedish national Fairtrade initiative, Rättvisemärkt, launched their Fairtrade City campaign by making Malmö Sweden's first Fairtrade City in 2006. In 2014 Malmö applied for funds from Vinnova and aims to become a "Fair fashion city". In April SFA arranged a workshop with different stakeholders to support this development.
Geographical coverage	Sweden
Product type addressed	Apparel
Position in value chain	Marketing, distribution, active lifetime and Waste management
Headline focus area(s)	Replace (Redirect)
Sub-focus area(s)	Sustainable Business models, consumers /citizen behavior

Name of initiative	Mistra Future Fashion
Initiating organization and year	Hosted by SP Technical Research Institute of Sweden is a research program financed by Mistra. 2011
Weblink	www.mistrafuturefashion.com/
Short description	The purpose of the MISTRA Future Fashion Program is to deliver insights and solutions that will be used by the Swedish Fashion Industry and other stakeholders to significantly improve the environmental performance and strengthen their global competitiveness.
Geographical coverage	Swedish
Product type addressed	All textiles
Position in value chain	All
Headline focus area(s)	Reduce (Replace)
Sub-focus area(s)	Sustainable business models, Sustainable business design, Reuse & Recycling, Low impact production chains, Producer CSR

Name of initiative	Ragn-Sells and Myrorna cooperation
Initiating organization and year	Ragn-Sells and Myrorna, 2013
Weblink	http://www.ragnsells.se/sv/Om-foretaget/Press/Nyhetsarkiv/Ragn-Sells-och-Myrorna-gor-det-enklare-att-skanka-klader/
Short description	A collection of textiles close to households (but not kerbside) solution to increase the collection of used clothing and other textiles. In the long run, the aim is the make it as natural to leave the textile you do not want anymore, as it is to recycle packaging and papers.
Geographical coverage	Sweden
Product type addressed	All textiles
Position in value chain	Active Lifetime & Waste management
Headline focus area(s)	Reduce
Sub-focus area(s)	Reuse and recycling

Name of initiative	Naturskyddsföreningen
Initiating organization and year	Naturskyddsföreningen
Weblink	http://www.naturskyddsforeningen.se/bra-miljoval/textil
Short description	The label Bra Miljöval ensures that clothing and textiles are manufactured in a fair way. New products fall into the category of Fiber and Preparation. This category puts requirements both the fiber content and the processes that follow. Beside Bra Miljöval are also the labels Bra Miljöval Second hand and Bra Miljöval Re-design. Re-designed products can be created out of recycled materials and production waste. There is also the option to add new material that is eco-labeled. For example if you decide to press on, or make any other treatment must paints, chemicals and processes comply with the criteria.
Geographical coverage	Sweden
Product type addressed	All textiles
Position in value chain	Design, Production, Sourcing and waste management
Headline focus area(s)	Reduce
Sub-focus area(s)	Low impact production chains, Producer CSR

Name of initiative	Re:newcell
Initiating organization and year	Re:newcell, 2012
Weblink	http://www.renewcell.se/
Short description	Re:newcell has developed a unique method for the regeneration of textile fibers. The process was developed at the Royal Institute of Technology (KTH), and enables a recycling of used textiles into new textiles. The company is now working on scaling up the process from the lab environment into an industrial size.
Geographical coverage	Sweden
Product type addressed	All textiles
Position in value chain	Waste management
Headline focus area(s)	Reduce
Sub-focus area(s)	Reuse and recycling, Low impact production chains

Name of initiative	ReturTexAB
Initiating organization and year	Boer Group and Human Bridge, 2013
Weblink	http://www.returtex.se/
Short description	ReturTex offers solutions for reuse and recycling of textiles in accordance with current environmental requirements. ReturTex procure textiles from municipal recycling centers, waste management companies, real estate companies and the collection of non-profit organizations in the Nordic region with the aim of starting a textile sorting in Sweden. It is co-owned by the international textile sorting company Boer Group and the foundation Human Bridge.
Geographical coverage	Nordic
Product type addressed	All textiles
Position in value chain	Waste Management
Headline focus area(s)	Reduce
Sub-focus area(s)	Reuse and recycling

Name of initiative	SSEI Swedish Shoe Environmental Initiative
Initiating organization and year	Swedish shoe companies, 2012
Weblink	http://ssei.se/
Short description	The goal of the project is to create a tool that will help the individual company to produce shoes in a more sustainable way; a sustainability tool for design and product consisting of an index with different levels.
Geographical coverage	Sweden
Product type addressed	Shoes
Position in value chain	Design, Sourcing & Production
Headline focus area(s)	Reduce
Sub-focus area(s)	Reuse and recycling

Name of initiative	Studio Redesign
Initiating organization and year	Västra Götalandsregionen, 2012
Weblink	http://epi.vgregion.se/sv/studioredesign/
Short description	<p>Studio ReDesign aims to develop new products with the help of textile waste from Västra Götaland. The designers first work was a collection of about 50 prototypes shown at the Stockholm Furniture Fair 2013, it was the medial start of Studio Re: Design.</p> <p>Today the Swedish Red Cross delivers some of its collected material to the studio that now has grown to six design firms working with sustainable design, logistics, production and business development. This resulted in a network that called AROUND.</p>
Geographical coverage	Sweden
Product type addressed	All textiles
Position in value chain	Design & waste management
Headline focus area(s)	Reduce
Sub-focus area(s)	Reuse and recycling

Name of initiative	Swedish Environmental Protection Agency
Initiating organization and year	Swedish Environmental Protection Agency, 2013
Weblink	http://www.naturvardsverket.se/Miljoarbete-i-samhallet/Miljoarbete-i-Sverige/Regeringsuppdrag/Redovisade-2013/Fem-nya-etappmal/Textil-och-textilavfall-/
Short description	The Swedish EPA is proposing an interim goal for Sweden to take a step closer to a more sustainable use of textiles. They are also suggesting that a producer responsibility is introduced combined with information campaigns.
Geographical coverage	Sweden
Product type addressed	All textiles
Position in value chain	All
Headline focus area(s)	Reduce
Sub-focus area(s)	Reuse and recycling

Name of initiative	Swedish Red Cross and Swedavia
Initiating organization and year	Swedish Red Cross and Swedavia, 2013
Weblink	http://www.redcross.se/pressrum/pressmeddelanden/?itemid=935898
Short description	The Red Cross has opened a pop-up shop at Sky City at Stockholm Arlanda Airport. This initiative is an activity that flows from LFV and the Red Cross cooperation. The shop will sell special garments, gift certificates, and focus on Red Cross activities.
Geographical coverage	Sweden
Product type addressed	Apparel, home textiles, children's clothes
Position in value chain	Active lifetime & waste management
Region(s)	Reduce (Replace)
Focus Area(s)	Consumer behavior, Reuse and recycling

Name of initiative	Swedish Textile and Water Initiative
Initiating organization and year	A joint project between textile and leather retail companies in Sweden together with Stockholm International Water Institute (SIWI). SIWI acts as the host / secretariat of STWI. 2010
Weblink	http://www.swedishwaterhouse.se/en/STWI/
Short description	During the initial two year process, the STWI companies formed working groups on topics such as production technique, water treatment, sludge management, and policy engagement, which served as platforms for exchanges related to the development of guidelines for sustainable water use. The STWI group embarked on a new-phase starting at the beginning of 2013. Since the beginning of this phase, STWI become financially independent and funded completely by the member companies.
Geographical coverage	Swedish
Product type addressed	All textiles
Position in value chain	Sourcing & Production
Headline focus area(s)	Reduce
Sub-focus area(s)	Low impact production chains & producer CSR

Name of initiative	Swedwatch
Initiating organization and year	Swedwatch
Weblink	http://www.swedwatch.org/sv/start
Short description	Swedwatch is a nonprofit organization and politically independent research-organization dedicated to reducing the social and environmental ills linked to the Swedish companies operating in developing countries. They produce articles on sustainability related to the textile industry.
Geographical coverage	Swedish
Product type addressed	All textiles
Position in value chain	Sourcing, production
Headline focus area(s)	Reduce
Sub-focus area(s)	Producer CSR

Name of initiative	Svenska Kriminalvården and The Swedish Red Cross
Initiating organization and year	Svenska Kriminalvården (Swedish prison and probation service) and the Swedish Red Cross, 2013
Weblink	https://www.kriminalvarden.se/upload/nyheter/131128_Ny%20strategi%20for%20atervinning%20av%20textilier.pdf
Short description	The Swedish prison and probation service has partnered with the Swedish Red Cross (SRK), which aims to take advantage of resources that would otherwise be incinerated to contribute to a more sustainable society. It comprises both making use of textiles from the Swedish prison and probation service as well as creating meaningful activities for inmates. Activities include cutting textile waste into cleaning cloths, refurbishment and other activities.
Geographical coverage	Sweden
Product type addressed	All textiles
Position in value chain	Waste management
Headline focus area(s)	Reduce
Sub-focus area(s)	Reuse and recycling

Name of initiative	T4RI Textiles for Recycling Initiative
Initiating organization and year	Åhléns, Indiska, Lindex, IKEA, KappAhl och H&M, run by Swedish Trade Federation, 2012
Weblink	http://www.svenskhandel.se/Om-Svensk-Handel/Samverkan-och-dotterbolag/Branschsamverkan/Stil/Viktiga-branschfragor/CSR-och-miljo/
Short description	T4RI wants to help the textile industry to take their share of responsibility for textiles primarily re-used, then recycled in the best way, and as the last option burned. We want to work towards a sustainable society, and that the environmental benefit is always in focus. We believe in a voluntary collective producer.
Geographical coverage	Swedish
Product type addressed	apparel, home textiles,, children's clothes
Position in value chain	Active lifetime & waste management
Headline focus area(s)	Reduce
Sub-focus area(s)	Reuse and recycling

Name of initiative	Textildialogen
Initiating organization and year	Kemikalieinspektionen, 2011
Weblink	http://www.kemi.se/sv/Innehall/Branschdialoger/Branschdialoger/
Short description	Chemicals Agency strives to facilitate companies to meet their responsibilities. Dialogue meetings have therefore started with priority sectors including textile industry. The dialogue aims to reduce chemical risks by voluntarily phase out hazardous chemicals beyond what the law requires. The Swedish Chemicals Agency has given out a report "Chemicals in textiles – Risks to human health and the environment" in 2014. The report identified hazardous chemicals that may be found in clothing and textiles in indoor environment.
Geographical coverage	Sweden
Product type addressed	Apparel, home textiles,, children's clothes
Position in value chain	Design, Sourcing & Production
Headline focus area(s)	Reduce (Evaluate)
Sub-focus area(s)	Low impact production chains, Nordic textile companies' environmental reporting

Name of initiative	Textile Fashion Center
Initiating organization and year	The city of Borås, University of Borås and businesses in Sjuhärad
Weblink	http://textilefashioncenter.se/2.5d38e7c813c96532e117be.html
Short description	Textile Fashion Center includes a range of independent businesses united by a clustering. It is collaboration between companies, research institutes, educations, and organizations working for innovation and business, and the University of Borås.
Geographical coverage	Swedish
Product type addressed	Apparel, home textiles, children's clothes etc.
Position in value chain	Design
Headline focus area(s)	Replace
Sub-focus area(s)	Sustainable production design, Sustainable business models

Name of initiative	Textilt avfall en framtida resurs (Textile waste a future resource)
Initiating organization and year	The city of Stockholm, 2012
Weblink	http://www.avfallsverige.se/rapporter/rapporter-2013/u201315/
Short description	The city of Stockholm together with Myrorna and KICI performed separate collection of reusable and recyclable textiles at recycling centers. They found that it is very difficult for consumers to differentiate between reusable and recyclable textiles even with intensive communication and information.
Geographical coverage	Sweden
Product type addressed	All textile, focus on textile waste
Position in value chain	Waste management
Region(s)	Reduce
Focus Area(s)	Reuse and recycling

Name of initiative	Textilverkstan
Initiating organization and year	Ringen Köpcentrum, Örjan Andersson (founder Cheap Monday) and Trädgården, 2014
Weblink	http://www.ringencentrum.se/textilverkstan/
Short description	Initiative aiming at engage people to repair their clothes instead of let them go to waste.
Geographical coverage	Sweden
Product type addressed	Apparel
Position in value chain	End of life
Headline focus area(s)	Reduce (Replace)
Sub-focus area(s)	Sustainable Business Models, Sustainable Product Design, Reuse and Recycling, Producer CSR

Name of initiative	The Global Leadership Award in Sustainable Apparel (GLASA)
Initiating organization and year	The Sustainable Fashion Academy, 2013
Weblink	http://glsaaward.org/
Short description	The Global Leadership Award in Sustainable Apparel was launched in 2013 to inspire bold and courageous leadership in the apparel sector and to mobilize key stakeholders around promising ideas or practices that can significantly increase the sustainability performance in the apparel sector.
Geographical coverage	Nordic
Product type addressed	Apparel
Position in value chain	All
Headline focus area(s)	Reduce
Sub-focus area(s)	Depending on award theme

Name of initiative	The Sustainable Fashion Academy
Initiating organization and year	The Sustainable Fashion Academy, 2008
Weblink	http://www.sustainablefashionacademy.org/
Short description	The Sustainable Fashion Academy's vision is an apparel industry that creates happier people, stronger communities, and a resilient planet. SFA's mission is to accelerate the industry innovations needed to ensure this happens. To this end, SFA equips leaders and entrepreneurs working at different levels within the industry with the knowledge and tools they need to develop and drive sustainable apparel innovations.
Geographical coverage	Sweden
Product type addressed	Apparel
Position in value chain	All
Headline focus area(s)	Reduce (Replace)
Sub-focus area(s)	Sustainable Business Models, Sustainable Product Design, Reuse and Recycling, Producer CSR

Name of initiative	The Swedish School of Textiles
Initiating organization and year	Högskolan i Borås
Weblink	http://www.hb.se/en/The-Swedish-School-of-Textiles/Collaboration/
Short description	The Swedish School of Textiles performs research and education on all aspects of textiles and run the Textile Research Center (CTF) and the Textile Innovation and Competence center (TIC).
Geographical coverage	Sweden
Product type addressed	All textile
Position in value chain	Cover all aspects
Region(s)	Reduce
Focus Area(s)	Low impact production chains, Reuse and recycling

Name of initiative	There is no waste (Det finns inget avfall)
Initiating organization and year	Swedish Waste management (Avfall Sverige), 2011
Weblink	http://www.avfallsverige.se/in-english/
Short description	Swedish Waste management have since 2011 taken on the vision that there is no waste and perform several information campaigns on waste prevention and reuse related to textiles. They are also funding several projects on textile collection and textile recycling.
Geographical coverage	Sweden
Product type addressed	All textile, focus on textile waste
Position in value chain	Waste management
Region(s)	Reduce
Focus Area(s)	Reuse and recycling

Name of initiative	UR (Swedish Educational Broadcasting Company) on textiles
Initiating organization and year	UR (Swedish Educational Broadcasting Company), 2014
Weblink	N/A
Short description	UR (Swedish Educational Broadcasting Company) produces a series on textile consumption and related environmental and social impacts for Swedish Television (SVT) other Nordic TV networks.
Geographical coverage	Sweden
Product type addressed	Apparel
Position in value chain	Cover all aspects
Region(s)	Replace
Focus Area(s)	Consumer behavior

Name of initiative	Utredning om ekonomiska styrmedel för kemikalier
Initiating organization and year	Swedish Government, Environment Ministry
Weblink	http://www.regeringen.se/sb/d/108/a/231201
Short description	A special investigator will analyze the need for new economic instruments in the field of chemicals and, if the investigator determines that the need exists, the type of financial instruments that are best able to be effective and cost effective. The main motivation for these new economic instruments in the field of chemicals should be to reduce the presence of, or risk of exposure and spread of environmental and hazardous substances from various groups, such as apparel and consumer electronics.
Geographical coverage	Sweden
Product type addressed	Apparel
Position in value chain	Design, Sourcing, Production and waste management
Region(s)	Reduce
Focus Area(s)	Low impact production chains, producer CSR

Norwegian

Name of initiative	Dualism of eco-labels (research project)
Initiating organization and year	National Institute for consumer research (SIFO) 2010
Weblink	http://www.sifo.no/page/preview/preview/10060/76800.html
Short description	This project will focus on the global consumer producer dialogue in general, and more specifically linked to India and Europe/Norway. We will also limit our study to textiles It is cooperation between CUTS international in Jaipur, India and SIFO, the national institute for consumer research in Oslo, Norway. It is also part of a planned strategic cooperation between CUTS and SIFO, beyond the actual Indian-Norwegian program.
Geographical coverage	Norway and India
Product type addressed	All textiles (cotton based)
Position in value chain	All
Time-frame	2010–2013
Region(s)	Reduce, Evaluate
Focus Area(s)	Sustainable private and public procurement

Name of initiative	Environment and health – a research-based knowledge base – B.7.03 Chemicals in textiles
Initiating organization and year	The Norwegian Institute of Public Health (Folkehelseinstituttet)
Weblink	http://www.fhi.no/artikler/?id=70095
Short description	The Norwegian Institute of Public Health has prepared a research-based knowledge base on chemicals in textiles.
Geographical coverage	Norway
Product type addressed	All textiles
Position in value chain	Sourcing, production
Time-frame	Ongoing
Region(s)	Reduce
Focus Area(s)	Low impact production chain

Name of initiative	Establishing Slow Fashion – Made in Norway (research project)
Initiating organization and year	Østfold research 2013
Weblink	http://ostfoldforskning.no/prosjekt/etablering-av-slow-fashion--made-in-norway--548.aspx
Short description	This pilot project provides a knowledge base for the establishment of a business models related to a more sustainable supply chain for clothing by exploring what can inspire consumers to choose slow or sustainable fashion. In addition, the collected data tests the evidence of specific garments use life cycle analysis (LCA) and SLCA (sustainability life cycle assessment) in order to detect obstacles, challenges and opportunities that lie in the value chain and the existing innovation systems.
Geographical coverage	Norway
Product type addressed	Clothing
Position in value chain	Production and marketing?
Time-frame	June 2013–November 2013
Region(s)	Reduce, Evaluate
Focus Area(s)	Low impact production chains, lifecycle analyses

Name of initiative	Ethical trading initiative Norway (IEH)
Initiating organization and year	Ethical trading initiative Norway (IEH)
Weblink	http://www.etiskhandel.no/
Short description	IEH is a resource centre and an advocate for ethical trade practices. Their objective is cooperation on trade which promotes human rights, workers' rights, development and environmental standards. IEH is multi-stakeholder initiative, represented by NGOs, Trade Unions, Businesses and the Enterprise Federation of Norway. IEH's aim is to strengthen its members' efforts to promote decent working and environmental conditions in their supply chains, and to strengthen support for ethical trade in general. Being a member of IEH means tackling challenges in the supply chain and reporting openly on the status and progress of efforts. They also are custodians of the Norwegian Restricted Chemical Substances list for textiles, commissioned by Virke (see initiative "Restricted Chemical Substances (Kjemikalieveileder)").
Geographical coverage	Norway
Product type addressed	All textiles and apparel (also other product types)
Position in value chain	Sourcing, production
Time-frame	Ongoing
Region(s)	Reduce
Focus Area(s)	Producer corporate social responsibility

Name of initiative	Green Nåløyet award
Initiating organization and year	HENNE Magazine 2014 in cooperation with NFI and NICE.
Weblink	http://www.henne.no/stikkord/n%C3%A5l%C3%B8yet
Short description	Honorary award “Green Nåløyet” focuses on ethical, environmentally conscious and sustainable production. It has so far only been handed out once, but HENNE plans to make this a yearly prize. The aim is to spot-light not only “organic” or what is generally associated with ethical or environmental focus for brands, but to make consumers more aware of better choices that make a difference.
Geographical coverage	Norway (global production and marketing potential)
Product type addressed	All apparel (though fashion focus, women’s and men’s)
Position in value chain	Potentially all – needs to be further explored.
Time-frame	Ongoing
Region(s)	Reduce
Focus Area(s)	Low impact production chains

Name of initiative	Grønn Hverdag: Research on ethics in clothing production
Initiating organization and year	Grønn hverdag 2013
Weblink	http://www.dinside.no/922642/norske-klesbutikker-faar-stryk (Report not available anymore: http://www.gronnhverdag.no/nor/Aktuelt/Groenn-Hverdags-klesundersokelse-2013).
Short description	This project was funded by the Norwegian government, and the aim was to rank “fashion companies” on the Norwegian market on their environmental and ethical engagement. What was considered the most important brands on the Norwegian market were contacted and had to fill in a survey, the results were analyzed by GH and then published. However, criticism on the methods were rather harsh, and the results have therefore been removed. GH has since been closed down. Tone has access to all the survey material.
Geographical coverage	Norway and Nordic region
Product type addressed	All apparel
Position in value chain	All
Time-frame	2013
Region(s)	Reduce, Evaluate
Focus Area(s)	Reuse and recycling, Low impact production chains, Producer corporate social responsibility, Sustainable private and public procurement, Life cycle analysis

Name of initiative	Information page on chemical in textiles
Initiating organization and year	State of the Environment Norway (miljøstatus.no)
Weblink	http://www.miljostatus.no/Tema/Kjemikalier/Produkter/Tekstiler/
Short description	Information page on chemical in textiles.
Geographical coverage	Norway
Product type addressed	All textiles
Position in value chain	Sourcing, production
Time-frame	Ongoing
Region(s)	Reduce
Focus Area(s)	Low impact production chain

Name of initiative	Made to fit
Initiating organization and year	Fjellrypa systue, 2012
Weblink	http://www.fjellrypa.no/ http://www.sifo.no/page/Forskning//10060/78833.html
Short description	Made to Fit conveys the potential for developing customized clothes for handi-capped, reports on the testing of methods and identifies the status of knowledge on the field.
Geographical coverage	Norway
Product type addressed	Clothing
Position in value chain	Design production
Time-frame	Ongoing
Region(s)	RETHINK
Focus Area(s)	Improving on function, fit and/or flexibility Inclusive design

Name of initiative	Potential for increased material recycling of textile waste and other waste types (paper/cardboard, metal, and glass)
Initiating organization and year	Norwegian Environment Agency
Weblink	http://www.sifo.no/files/file78453_fagrapport_2-2012_rev1.pdf http://www.sifo.no/page/Forskning/Intranett_prosjekt_avsluttede/10060/78298.html
Short description	A project with aim to assess the potential for increasing material recycling of textile waste and other waste types. This project is commissioned by the Climate and Pollution Agency (CPA), which aims to assess the opportunities for increased recycling of textile waste in Norway, and assess the costs and environmental impacts of any changes. The contract also contains a short summary of the same questions for other types of waste (cardboard / paper, glass and metal). SIFO has been responsible for the work that is to be, conducted in cooperation with Meistad Mentoring and Oakdene Hollins Ltd AS.
Geographical coverage	Norway
Product type addressed	All textiles
Position in value chain	Waste treatment
Time-frame	2011–2012
Region(s)	Reduce, Evaluate
Focus Area(s)	Reuse and recycling, statistics of textile flows and use

Name of initiative	Public procurement: sustainable tool for textile and work clothes / uniforms
Initiating organization and year	Difi, ongoing
Weblink	http://www.anskaffelser.no/verktoy/tekstiler-og-arbeidstoyuniformer-miljokriteriesett
Short description	The document gives environmental information and a criteria for guiding public procurement of textiles, clothing and work wear including uniforms.
Geographical coverage	Norway
Product type addressed	Textiles, clothing, work wear and uniforms
Position in value chain	Sourcing, active lifetime
Time-frame	Ongoing
Region(s)	Reduce
Focus Area(s)	Sustainable public procurement

Name of initiative	Restricted Chemical Substances (Kjemikalieveileder)
Initiating organization and year	Ethical trading initiative Norway (IEH) (Commissioned by Virke) 2013
Weblink	http://www.virke.no/bransjer/bransjeartikler/Documents/Virkes%20kjemikalieveileder.pdf
Short description	This manual is a practical tool for personnel responsible for product safety and for the purchasing department that must ensure in daily operations that the chemical requirements placed on the suppliers are followed.
Geographical coverage	Norway (but also global)
Product type addressed	All textiles
Position in value chain	Production and sourcing
Time-frame	Ongoing
Region(s)	Reduce
Focus Area(s)	Low impact production chains

Name of initiative	Sustainable regulation (research project)
Initiating organization and year	National Institute for consumer research (SIFO) 2010
Weblink	http://www.sifo.no/sustainable-regulation/eng/ http://www.sifo.no/page/Forskning/10060/76693.html
Short description	Consumption practices are important for a sustainable development in terms of adaptations as well as active responsibilities. This is increasingly addressed in policies on environmental sustainability, most often in the form of product labeling. But there is considerable uncertainty and often little success with regard to implementing such policies. This project focuses on the ways in which consumption is and can be regulated in order to become more sustainable, including strong measures of state intervention as well as softer, more indirect and voluntary forms of regulation. In particular, the project aims to get a better understanding of how consumer self-regulation develops within systems of provision, consumer cultures, and regulatory initiatives. Comparison on beef and cotton, both with significant and complex environmental impacts globally and nationally. By linking to research in the UK and France, we will be able to compare regulatory approaches in countries with different regulatory regimes and consumer cultures.
Geographical coverage	Norway, UK and France
Product type addressed	All textiles (cotton based)
Position in value chain	Active lifetime
Time-frame	2010–2014
Region(s)	Evaluate (Reduce)
Focus Area(s)	Low impact production chains (Regulation could have been a focus area)

Name of initiative	Textile panel
Initiating organization and year	Norwegian Fashion Institute since 2011 (earlier lead by Grip)
Weblink	http://www.norwegianfashioninstitute.com/#press https://www.facebook.com/tekstilpanelet
Short description	Textile panel is a meeting place for the Norwegian textile industry for sharing information and discussing sustainability related issues. There are generally two seminars per year with participants from various textile companies, regulatory bodies, researchers, and large textile buyers such as the military.
Geographical coverage	Norway (with international input for lectures)
Product type addressed	Clothing and some interior textiles
Position in value chain	All stages
Time-frame	Ongoing
Region(s)	Replace, Reduce, Redirect, Evaluate
Focus Area(s)	Sustainable Product design, Producer corporate social responsibility, sustainable private and public procurement, encourage and facilitate local value-chains, statistics/LCA

Name of initiative	Textile waste as a resource (research project)
Initiating organization and year	National Institute for consumer research (SIFO) 2009
Weblink	http://nordicfashionassociation.com/project/textile-waste-resource http://www.sifo.no/page/Forskning//10060/75453.html
Short description	From textile waste to material resources in a cradle to cradle perspective: How can a multidisciplinary approach to waste reduction contribute to reduce the material flow and turn waste into a material resources? The project aim was to reverse the classical LCA and starts with what we generally see as the end-result. The project also aimed to take a deep look at the consumers' role in the life cycle of textiles and clothing, including how we care for what we buy.
Geographical coverage	Norway
Product type addressed	Mainly clothing
Position in value chain	Active lifetime
Time-frame	2009–2014
Region(s)	Replace (Reduce, Rethink, Evaluate)
Focus Area(s)	Sustainable product design, consumer/citizen behavior, reuse and recycling, sustainable private use, better textiles, statistics of textiles flows and use

Name of initiative	Textiles (information page)
Initiating organization and year	Norwegian Environment Agency
Weblink	http://www.miljodirektoratet.no/no/Tema/Kjemikalier/Produkter/Tekstiler/
Short description	Information page on chemical in textiles.
Geographical coverage	Norway
Product type addressed	All
Position in value chain	Sourcing, production
Time-frame	Ongoing
Region(s)	Reduce
Focus Area(s)	Low impact production chain

Name of initiative	The NorWay
Initiating organization and year	Norwegian Fashion Institute 2014
Weblink	N/A
Short description	A cluster with Moods of Norway and several other fashion brands has just received funding for a pre-study and will develop a strategy for the Norwegian textile and apparel industry on how to feed into the NCM Roadmap plan. On September 5 th the application for a pre-project will be developed.
Geographical coverage	Norway (global implications)
Product type addressed	All apparel and textiles.
Position in value chain	All
Time-frame	Ongoing
Region(s)	To be decided
Focus Area(s)	Still to be decided

Name of initiative	Valuing Norwegian wool (research project)
Initiating organization and year	National Institute for consumer research (SIFO) 2010
Weblink	http://nordicfashionassociation.com/content/wool-project http://www.sifo.no/page/Forskning//10060/76798.html
Short description	The goal of this project was to look at the whole lifecycle of wool, finding new and innovative approaches to bringing wool to the forefront in textiles again. Wool has been the central textile fiber in Norwegian (and Nordic) history and is still economically important to Norwegian farming, textile manufacturing, retailing and the garment/fashion industry. However, the Norwegian wool has not been used in local production-chains, and therefore new use potential and use areas have been explored. The project also included research on use and laundering properties of wool.
Geographical coverage	Norway (some international partners)
Product type addressed	All textiles (wool)
Position in value chain	Design, production, active lifetime and waste management
Time-frame	2010–2013
Region(s)	Redirect, (Replace, Reduce, Rethink, Evaluate)
Focus Area(s)	Sustainable business models, Sustainable product design, consumer/citizen behavior, Low impact production chains, Sustainable private and public use, Encourage and facilitate local value-chains, Better textiles, Statistics of textile flows and use

Name of initiative	Wool – children and youth breathe life into cultural heritage
Initiating organization and year	Norges Husflidslag 2014
Weblink	http://www.husflid.no/husflid/aktuelt/tre_millioner_i_breddegave_fra_sparebank_stiftelsen_dnb
Short description	A project for training and dissemination within the established school system, feeding material into handicrafts lessons. The Norwegian Handicrafts organization has received 3 million NOK to kick-start a project that ensures all Norwegian children and youth get an understanding of wool as an important local raw-material, the value-chain involved in transforming raw wool to yarns and end-products, as well as an insight into the environmental and ethical issues surrounding the textile industry.
Geographical coverage	Norway
Product type addressed	All textiles (wool based)
Position in value chain	Design, sourcing, production, distribution, active lifetime
Time-frame	In pre-process
Region(s)	Redirect
Focus Area(s)	Encourage and facilitate local value-chains

Finnish

Name of initiative	Advanced Cellulose to Novel Products (ACel)
Initiating organization and year	FIBIC (Finnish Bioeconomy Cluster) 2014
Weblink	http://fibic.fi/news/fibics-new-research-program-seeks-new-markets-by-advanced-cellulose-based-products
Short description	FIBIC has launched a new research program called Advanced Cellulose to Novel Products (ACel). The ACel program focuses on examining the phenomena affecting the reactivity of the cellulose, and on new methods to modify the cellulose fibers. In addition, the program aims to create competence enabling the further development of the new, ionic liquid based fiber spinning process. The program benefits from the market growth of renewable and sustainable materials. The Finnish cellulose know-how is at the top-notch level. Therefore, it offers unique opportunity to introduce new, advanced cellulose materials to the global market of bio-based materials. FIBIC expects that the ACel program has a significant impact on the renewal of the Finnish forest cluster. The participants of the program include nine companies as well as six research partners.
Geographical coverage	Finland
Product type addressed	All textiles (cellulose based)
Position in value chain	Production
Time-frame	2014 to May 2017
Region(s)	Redirect
Focus Area(s)	Encourage and facilitate local value chains

Name of initiative	Benefit from hemp – new opportunities for rural businesses (Hyötyhamppu)
Initiating organization and year	Cooperation between European Agricultural Fund for Rural Development (EAFRD), South west Finland riverside partner's association and Turku university of applied sciences, 2011
Weblink	http://www.hyotyhamppu.fi/index.php/hyotyhamppu/kuituhamppu
Short description	Project Benefit from hemp – new opportunities for rural businesses was started in 2011 as a rural development project (Hyötyhamppu). The project aims at sustainability of rural areas – employment, farming and sustainable raw materials. The objectives of the project are to add interest and know-how related to the utilization of hemp and to increase potential diversification of rural livelihoods. It includes hemp for fiber and oil production.
Geographical coverage	South west Finland
Product type addressed	All textiles (hemp based)
Position in value chain	Production
Time-frame	2011–2013
Region(s)	Reduce, Redirect
Focus Area(s)	Low impact production chains, encourage and facilitate local value chains

Name of initiative	Climate diet (ilmastodieetti.fi)
Initiating organization and year	Finnish environment institute (SYKE), 2013
Weblink	http://www.ilmastodieetti.fi/
Short description	Web page where you can calculate your own climate impact, including the amount of clothes and textiles you buy (given as cost per month). The calculator helps you identify where emissions come from everyday life and how they can be reduced. The Finnish Environment Institute has made the calculator in order to support the carbon neutral project (HINKU) and to encourage people to a carbon-neutral lifestyle (Ekokoti).
Geographical coverage	Finland
Product type addressed	Clothing, interior textiles, furniture
Position in value chain	Active lifetime
Time-frame	Ongoing
Region(s)	Replace, Evaluate
Focus Area(s)	Consumer/citizen behavior, statistics

Name of initiative	Design Driven Value Chains in the World of Cellulose (DWOc) research project
Initiating organization and year	VTT Technical Research Centre of Finland, Aalto University and Tampere University of Technology, 2013
Weblink	http://www.vtt.fi/news/2013/02102013_DDWOc.jsp?lang=en http://paper.net.se/news/old-textile-becomes-new-finland/
Short description	The "Design Driven Value Chains in The World of Cellulose" project offers a new approach to using wood-based cellulose as well as cellulose based waste textiles such as cotton. The goal is to integrate design and design processes into the strategic development of businesses operating in the field and brand Finland as a producer of refined, cellulose-based products. The project includes students in the design process and searches for opportunities that go beyond existing technologies, such as fashion, consumer goods and technical fabrics. The project is intended to create a business ecosystem to serve both existing industry and a new, growing cellulose-based industry. The objective is to develop cellulose-based products suitable for technical textiles and consumer products. The technology could also find use in the pharmaceutical, food and automotive industries.
Geographical coverage	Now Finland, but with global aim
Product type addressed	All textiles (cellulose based)
Position in value chain	Production, waste management
Time-frame	Current project runs 2013–2015, large scale production expected in few years
Region(s)	Reduce, Redirect
Focus Area(s)	Recycling, encourage and facilitate local value chains

Name of initiative	FINATEX education program (vastuullisuus­käsikirja)
Initiating organization and year	FINATEX (Textile and clothing industry Association), ongoing
Weblink	http://www.finatex.fi/uutiset/tekstiili-ja-vaatetusteollisuus-finatex-ry-kouluttaa-yrityksia-vastuulliseen-liiketoimintaan.html#_U_tv9VKKCmw http://www.finatex.fi/media/julkaisut/tiedostot/ymparistolakiopas_2008.pdf http://www.finatex.fi/toimiala/vastuullisuus/aineet-tuotteissa.html#_U610qFKKCmw
Short description	Textile and clothing industry Association FINATEX provides their member companies an education program and variety of sustainability tools including environmental, social and economic sustainability. They have prepared a responsibility manual where guidelines are based on the GRI reporting (Global Reporting Initiative). In addition they have prepared instruction pamphlets on environmental legislation within textile sector, including production and maintenance requirements, as well as information about harmful chemicals (mainly about Reach) and eco-labeling.
Geographical coverage	Finland
Product type addressed	All textiles
Position in value chain	Design, sourcing, and production
Time-frame	Ongoing
Region(s)	Reduce, Evaluate
Focus Area(s)	CSR, low impact production chains, environmental reporting

Name of initiative	FuBio Cellulose research program, loncell fiber
Initiating organization and year	Aalto university and University of Helsinki
Weblink	http://www.aalto.fi/fi/current/news/2014-03-12-004/ http://www.finatex.fi/uutiset/kotimaisesta-koivusta-tehty-vaate-muotina­ytöksessa.html#_U60hxlKKCmw
Short description	loncell-fiber made of domestic birch by Aalto and Helsinki university. Fiber is stronger than other cellulose based fibers such as cotton or viscose, and has a good lustre.
Geographical coverage	Finland
Product type addressed	All textiles (cellulose based)
Position in value chain	Production
Time-frame	Estimated industrial scale production in 3–5 years
Region(s)	Redirect
Focus Area(s)	Encourage and facilitate local value chains

Name of initiative	Kierrätyskeijut
Initiating organization and year	Consumer initiatives, ongoing
Weblink	https://www.facebook.com/kierratyskeijut2014 https://www.facebook.com/events/718023444912412/
Short description	Facebook groups and events where participants are not buying any new clothes in a year.
Geographical coverage	Finland
Product type addressed	Clothing
Position in value chain	Active lifetime
Time-frame	Ongoing, a year at the time
Region(s)	Replace
Focus Area(s)	Consumer/citizen behavior

Name of initiative	Kulutus.fi
Initiating organization and year	Luonto-liitto (Nation-wide nature and environment protection organization for youth), ongoing
Weblink	http://www.kulutus.fi/ http://www.luontoliitto.fi/toiminta/toimintaryhmat/kulutuskriittinen/
Short description	The Finnish Nature League has a consumption critical group with information pages at www.kulutus.fi with hints on for example how to prolong lifespans of different products including textiles. Kulutus.fi is a place for discussion, reflection and opinions, the subject of ecological life and everyday choices. The site is generally delivered by volunteers and includes articles and blog posts related to consumption and personal choices.
Geographical coverage	Finland
Product type addressed	All textiles
Position in value chain	Active lifetime
Time-frame	Ongoing
Region(s)	Replace, Reduce
Focus Area(s)	Consumer/citizen behavior, Sustainable private procurement and use

Name of initiative	Punomo
Initiating organization and year	Punomo, ongoing
Weblink	http://punomo.fi/teeitse/
Short description	Web page with a variety of handicraft instructions and do-it-yourself topics including hints on how to recycle textiles. Includes also consumer advice on how to launder correctly to prolong clothing lifespans. Support page for arts and crafts teachers. Includes also links to a shop where some of the materials can be bought, but included here as the webpage is more informative than commercial.
Geographical coverage	Finland
Product type addressed	Clothing, interior, furniture, yarn etc
Position in value chain	Active lifetime and waste management
Time-frame	Ongoing
Region(s)	Reduce
Focus Area(s)	Reuse and recycling

Name of initiative	Research project on potential of using local hamp
Initiating organization and year	Juankoski city 2012
Weblink	http://www.finatex.fi/uutiset/kysely-kotimaisen-kuituhampun-kayttavyystekstiili-ja-vaatetusteollisuuden-raaka-aineena.html#.U60ehFKKcmw https://www.webropolsurveys.com/Answer/SurveyParticipation.aspx?SDID=Fin786407&SID=7d23b222-2bf3-4a31-9455-634647230f78&dy=1996092264
Short description	Research project on potential of using local fiber hamp in different types of textiles. It includes a survey among textile companies and was implemented in 2012–2013, and financed by the North Savo Centre for Economic Development, Transport and the Environment. Preliminary study showed that natural fiber hamp fiber material could be promising in particular in biocomposites and textiles. This project concentrated on fiber hamp production potential and further processing. The purpose of the survey was to find out the domestic fiber hamp raw material markets in the textile and clothing industry.
Geographical coverage	Savo-county in Finland
Product type addressed	All textiles (hemp based)
Position in value chain	Production
Time-frame	2012–2013
Region(s)	Reduce, Redirect
Focus Area(s)	Low impact production chains, encourage and facilitate local value chains

Name of initiative	TEXJÄTE –Research project on recycling of textiles (Tekstiilijäte – kierrätyksen mahdollisuudet ja esteet)
Initiating organization and year	Finnish environment institute (SYKE) 2013
Weblink	http://www.syke.fi/fi-FI/Tutkimus_kehittaminen/Tutkimus_ja_kehittamishankkeet/Hankkeet/Tekstiilijatteen_kierratyksen_mahdollisuudet_ja_esteet_TEXIATE/Tekstiilijatteen_kierratyksen_mahdollisu%284699%29
Short description	Research project on recycling possibilities and barriers of textile waste. The objectives of this project are: - to evaluate the opportunities and barriers for textiles recycling in Finland - to analyze the costs as well as environmental and social impacts of increased textile recycling - present proposals for action to increase the recycling of textile waste.
Geographical coverage	Finland
Product type addressed	All textiles
Position in value chain	Waste management
Time-frame	2013–2014
Region(s)	Reduce, Evaluate
Focus Area(s)	Reuse and recycling, Statistics

Name of initiative	Woollen Innovations
Initiating organization and year	University of Lapland, 2012
Weblink	http://www.ulapland.fi/loader.aspx?id=9e93c119-24d1-45ea-8a27-05754a26de20
Short description	University of Lapland Woollen Innovations (Winno) project is a continuation of two previous projects on Lappish sheep's wool. It concentrates on the potential of wool production in Finnish conditions and aims to find possibilities to manufacture products from Finnish sheep wool. Currently a large part of the raw wool is treated as waste and disposed of. Product prototypes were designed in such a way that the production in series could be possible. It mainly concentrates on felt materials research and development. Warming accessories were tested by patients suffering from rheumatic pain, and people with reduced mobility. Another field was interior design where acoustically good design was considered to be conducive to wellbeing factor.
Geographical coverage	Finnish Lapland
Product type addressed	Clothing and interior textiles (woolen felt products)
Position in value chain	Design and Production
Time-frame	2012–2014
Region(s)	Reduce, Redirect, Rethink
Focus Area(s)	Recycle waste wool, encourage and facilitate local value chains, better textiles for handicapped people

Icelandic

The only initiatives we found in Iceland were based on single companies or work of single designers and therefore outside the scope of this mapping.

Appendix 5: Project call text

3 april 2014

Projektbeskrivning till Nordisk kartläggning av initiativ inom textil området och förslag till inriktning på Nordisk färdplan för hållbara textilier.

Problembeskrivning och bakgrund

Textil- och modeindustrin är en av de mest resurskrävande industrierna i världen. Produktionen av kläder och textilier förbrukar stora mängder råvaror, energi och vatten samt kemikalier inklusive bekämpnings- och gödnings medel, som påverkar både miljö och hälsa. Konsumtionen av kläder och textilier ökar. I Sverige har mängden konsumerad textil ökat med 40% mellan 2000 till 2009 och de danska hushållens årliga konsumtion av textilier har ökat med 36% från 2003 till 2010. Svenskar, danskar, norrmän och finländare samt islänningar konsumerar ca 13–16 kg textilier per år, varav över hälften hamnar i restavfallet och fortsätter direkt till förbränningsanläggning alternativt deponering utan att materialåtervinnas eller återanvändas. Framtiden kräver ett helt annat sätt att producera och konsumera kläder och textilier.

Den nordiska mode- och textilindustrin har potential att utveckla och positionera sig som ledande inom hållbart mode. Nordic Fashion är redan i dag ett etablerat begrepp och förknippas med värden som renhet, etik och minimalism. Genom att addera hållbarhetsaspekter till nordiskt mode kan den internationella uppmärksamheten även fortsättningsvis förväntas vara stor och säkerställa att Norden har en ledande position.

Nordiska Ministerrådet eftersträvar att ta fram en konsekvent Nordisk strategi som kan bidra till att främja utveckling och tillväxt av hållbart mode. Det i sin tur kan generera nya gröna arbetstillfällen samtidigt som det bidrar till att uppfylla målen i det Nordiska Miljöhandlingsprogrammet med fokus på synergier mellan hållbar konsumtion och produktion, resurseffektivitet och avfall samt hälso- och miljöfarliga kemikalier.

Nordisk färdplan

Ett led i denna nordiska strategi är att under 2015 ta fram en gemensam Nordisk färdplan för att skapa hållbara och resurseffektiva kretslopp utan farliga ämnen för textilier. Nordisk kartläggning 2014 är en förstudie inför arbetet med färdplanen. Den Nordiska färdplanen ska komma att ange politisk riktning och konkreta handlingar och åtgärder inom och mellan områdena: hållbar konsumtion och produktion, kemikalier och resurser. Detta för att minska miljöpåverkan orsakad av textilkonsumtion- och produktion och samtidigt öka den nordiska konkurrenskraften och skapa nya gröna jobb. Det kan till exempel vara utbildning av designers i hållbara material, nordisk påverkan av EU:s kemikalieförordning, utveckling av gröna affärsmodeller, såsom leasing, värdering och förbättring av miljökonsekvenser i försörjningskedjan – genom till exempel användning av miljömärkningar, förebilder i hållbar konsumtion etc. I den nordiska färdplanen ska identifieras synergier och styrkor för hållbart skandinavisk mode och textil. Den nordiska färdplanen bör inspireras av och bygga på erfarenheter från liknande initiativ, däribland Storbritanniens Sustainable Clothing Action Plan (SCAP).

Nordisk organisation

Ämbetsmannakommittén för miljö (ÄK-M) ansvarar för finansiering av detta projekt: Nordisk kartläggning av initiativ inom textil området och förslag till inriktning på färdplan för hållbara textilier. Projektets styrgrupp består av representanter från arbetsgrupperna Nordiska kemikaliegruppen (NKG), Nordiska avfallsgruppen (NAG) och Gruppen för - hållbar konsumtion och produktion (HKP) samt handläggare från Miljöstyrelsen i Danmark. Styrgruppen är gemensamt ansvariga för inriktning och beslut rörande projektet. NAG koordinerar arbetet.

För mer information om det nordiska samarbetet:

<http://www.norden.org/>

Pågående projekt

Det finns idag flera pågående nordiska projekt och satsningar med inriktning på mode-och textilindustrin.

Inom statsminister initiativet Grön tillväxt driver bland annat Nordiska Avfallsgruppen (NAG) tre textilavfallsprojekt för ökad återanvändning och materialåtervinning. I de nordiska länderna skickas nästan allt textil avfall i dag till förbränning eller deponering. Det finns därför en stor potential att utnyttja de värdefulla textila resurserna på ett mer

hållbart sätt. De nordiska grön tillväxt projekten på textil syftar till att öka återanvändning och materialåtervinning av textilier för att minska uppkomna avfallsmängder och därigenom minska miljöpåverkan av textilkonsumtion samt öka Nordens konkurrenskraft och möjligheter att generera gröna jobb. De tre projekten är:

1. Textile reuse and recycling commitment /Textilt åtagande för återanvändning och materialåtervinning.
2. Strategy for textile reuse and recycling/ Strategi för textile återanvändning och materialåtervinning.
3. Textiles: EPR system and business models/ Textilier: Producentansvar och affärsmodeller.

För mer information kontakta Yvonne.Augustsson@naturvardsverket.se som är koordinator för textilprojekten.

Nordiska avfallsgruppen (NAG) arbetar även med avfallsförebyggande. I ett pågående projekt tas en guide fram, riktad till konsumenter med fokus på unga och småbarnsfamiljer om den verkliga miljöbelastningen från produktion av textilier. Inom projektet kommer görs även en film (fast drawing) som är tänkt att kunna spridas i sociala medier samt en broschyr som miljömyndigheter, kommuner och andra kan använda.

Gruppen för hållbar konsumtion och produktion (HKP) har ett pågående projekt om grön textilproduktion i Tirupur i Indien. Projektet är en fortsättning på ett projekt *The Potential for Green Textile sourcing from Tirupur* som genomfördes under 2012. I projektet analyserades möjligheterna för att bland annat skapa ett kluster av gröna textilproducenter baserade på EU Ecolabel och ISO 14001.

För mer information:

<http://www.norden.org/sv/search?SearchableText=Tirupur>

Syfte

Syftet med en Nordisk kartläggning är att identifiera nordiska såväl som internationella initiativ inom textil området som kan bidra till att skapa hållbara och resurseffektiva kretslopp utan farliga ämnen för textilier inom Norden. Initiativen ska utvärderas och sättas i kontext till det fortsatta arbetet med att ta fram en Nordisk färdplan 2015. I uppdraget ingår även att utifrån utvärderingen identifiera prioriterade områden, viktiga att inkludera i en färdplan samt att ge förslag till en genomförandeplan för att ta fram en Nordisk färdplan.

En viktig del i utvärderingsarbetet blir att inhämta olika aktörers synpunkter samt att dokumentera varför föreslagna prioriterade områden valts ut. Nordiska kartläggningen ska sedan tillsammans med resultaten från grön tillväxt initiativets textilprojekt ligga till grund för den Nordiska färdplanen.

Målsättning

Det övergripande målet med Nordisk kartläggning är att ge en initierad, strukturerad och överskådlig bild av pågående initiativ inom textilområdet i Norden men även internationellt, som har potential att utgöra en grund för Nordisk färdplan. Att identifiera och redovisa styrkor såväl som svagheter hos de olika initiativen samt identifiera eventuella brister eller så kallade "vita fläckar" inom de specificerade fokusområdena (se genomförande nedan) som behöver kompletteras inför det fortsatta arbetet med färdplanen.

Baserat på de initiativ och processer som redan pågår inom Norden och internationellt ska rekommendationer ges för det fortsatta arbetet med att ta fram en Nordisk färdplan. Det innebär att identifiera prioriterade områden som bör inkluderas i Nordisk färdplan utifrån nedan angivna aspekter:

- Miljöpotential.
- Möjligheter till synergi med pågående initiativ inom miljö- och tillväxtområdet.
- Ge nordisk nytta, tillväxt och ökad konkurrenskraft samt gröna jobb.
- Nya affärsmodeller.
- Innovation och nytänkande.

En viktig del i den här processen kommer att vara att involvera och inhämta samt koordinera synpunkter från berörda intressenter från alla nordiska länder, som till exempel myndigheter, experter och textilbranschen samt koordinera deras olika intressefrågor.

De identifierade områdena ska sammanställas och införlivas i ett förslag till processplan som ska ligga till grund för det vidare arbetet med att ta fram en Nordisk färdplan under 2015.

Genomförande – Kartläggning, utvärdering och presentation samt rapportering

Del 1: Kartläggning

- Kartläggning över textila initiativ inom Norden ska genomföras utifrån följande specificerade fokusområden:
 - Design för en mer hållbar textil värdekedja.
 - Livscykelanalyser över textila värdekedjor och olika textila material.
 - Återanvändning och materialåtervinning – avfall och resurser.
 - Konsumentbeteende, inklusive miljömärkningar, information och “nudging”.
 - Statistik över textila flöden och inom och mellan de nordiska länderna.³¹
 - Nordiska textila företags miljörapportering.
 - Textilföretags miljöarbete, CSR-arbete och arbetsförhållande vid produktion av textilier som exempelvis Kemikalieanvändning, vatten, CO₂, sociala aspekter.
 - Textilföretags inköpskriterier för produkter.
 - Offentlig upphandling och inköpskriterier.
 - Utbildning inom branschen.
 - Utvecklade kommunala insamlingsystem Nationella styrmedel och pågående/genomförda nationella initiativ i Norden.

³¹ Textila flöden är kartlagda genom följande rapporter:

Tojo, N., Kogg, B., Nikola, K., Kjaer, B., & Aalto, K. (2012). Prevention of Textile Waste Material flows of textiles in three Nordic countries and suggestions on policy. Copenhagen: Nordic Council of Ministers.

Palm, D *et al.* (2014). Strategy for textile reuse and recycling Copenhagen: Nordic Council of Ministers.

Del 2: Utvärdering:

- Identifiera pågående internationella initiativ som kan ge relevant input till en Nordisk färdplan.
 - SCAP – Sustainable Clothing Action Plan.³²
 - Franska Producentansvaret.³³
 - Higgs index.
- Andra internationella initiativ.
- Komplettera ovanstående med intervjuer med till exempel projektledare, forskare, berörda intressenter inom myndigheter, experter och textilbranschen samt koordinera deras olika sakintressen för att skapa en tydlig bild av vad som uppnåtts inom respektive initiativ. Minst en intervju måste göras med representant från vart och ett av de nordiska länderna.
- Analysera och dokumentera styrkor och svagheter hos de olika textila initiativen och beskriva på vilket sätt de kan bidra till en Nordisk färdplan.
- Identifiera utforskade områden. Behövs kompletteringar och vidare forskning?
- Identifiera nordiska styrkepositioner inom mode och textilområdet.
- Identifiera möjliga synergieffekter mellan avfalls-, kemikalie- och hållbarhetspolitiken.
- Utarbeta rekommendationer för prioriterade områden att inkluderas i Nordisk färdplan.
- Utarbeta förslag på en genomförandeplan för det fortsatta arbetet med att ta fram en färdplan.

Del 3: Presentation vid Nordisk grön tillväxt textil workshop oktober 2014

Resultatet av kartläggningen inklusive identifierade prioriterade områden samt förslag på processen för framtagandet av en färdplan ska presenteras av projektgruppen vid Nordisk grön tillväxt textil workshop i Köpenhamn den 8 oktober 2014. Nordisk grön tillväxt textil workshop organiseras av Sustainable Fashion Academy (SFA) på uppdrag av NAG

³² <http://www.wrap.org.uk/content/sustainable-clothing-action-plan-1>

³³ <http://www.ecotlc.fr/>

och är en del i de pågående nordiska textilprojekten inom grön tillväxtinitiativet. Vid workshopen kommer ca 80 utvalda representanter från bland annat myndigheter, frivillig organisationer, forskare och experter såväl som textil- och avfallsbransch från alla nordiska länder att finnas representerade.

Mera information om grön tillväxt initiativet, se:
<http://www.norden.org/no/tema/green-growth>

Kriterier hos anbudsgivare för att kunna utföra en Nordisk kartläggning

Kompetens hos utförare

- Textilkunskap (allmän såväl som teknisk).
- Kunskap om textiliers miljöpåverkan under hela livscykeln.
- Kunskap om textil- och modebranschen.
- Kunskap om resurseffektivitet och cirkulär ekonomi.
- Samhällsekonomiska kunskaper, t.ex. förmåga att värdera verksamhetens tillväxtpotential, ekonomi och konkurrensförmåga etc.
- Dokumenterat nordiskt nätverk.
- Kunskap om den internationella marknaden för textil.
- Kemikaliekunskaper.
- Kunskap om styrmedel generellt och inom textilbranschen.
- Erfarenhet av analytiskt utvärderingsarbete.

Antal deltagande länder

Nordiska Ministerrådet uppmuntrar konsulter att i projektgruppen och i val av leverantörer involvera deltagare från minst tre nordiska länder. Färöarna, Grönland och Åland bedöms som oberoende länder vad gäller regeln om deltagande från minst tre länder. Deltagandet från varje land bör vara mer än nominellt.

Resultat

Resultatet ska dokumenteras i en skriftlig rapport i Tema NORD serien. För ytterligare information angående publicering se: <http://www.norden.org/sv/publikationer/produktion>. Dessutom ska kunskapsläget idag och önskat kunskapsläge för vidare arbete med att ta fram en Nordisk färdplan visualiseras och motiveras på ett överskådligt sätt exempelvis i en GAP-analys.

Resultatet av kartläggningen och analysen samt förslag på prioriterade områden ska presenteras vid Nordisk grön tillväxt textil workshop den 8 oktober 2014 samt vid kick-off för Nordisk färdplan primo 2015.

Preliminär tidplan

3 april	skickas upphandigen till 3 konsulter i de nordiska länderna (Sverige, Danmark, Island, Finland och Norge)
4 maj, kl 24:00	Deadline för anbud
5–8 maj	Styrgruppen går igenom inkomna anbud
8 maj	Styrgruppen fattar beslut om vem som får anbudet
9 maj	Konsulter börjar arbeta
27 augusti	Presentation på ÅK-M möte
10 september	1:a utkast kartläggningen levereras till ÅK-M och styrgrup
8 oktober	Resultaten förankras vid Nordisk textil workshop i Köpenhamn
1 november	Slutlig rapport klar för godkännande av NAG

Budget

Total budget från Nordiska Ministerrådet är 370 000 DKK exklusive moms.

Budgeten är beräknad på aktiviteter beskrivna i genomförandeplanen.

Del 1: Kartläggningen är till stor del en skrivbordsstudie men det kommer att kräva frekventa kontakter med olika intressenter.

Del 2: Utvärderingsarbetet kommer att behöva analytisk kapacitet och tydligt strukturellt ledarskap samt en hel del tid.

Del 3: innebär att presentera och motivera resultatet samt den föreslagna genomförandeplanen vid Nordisk grön tillväxt textil workshop 8 oktober samt på kick-off för Nordisk färdplan primo 2015.

Kostnader i samband med att förbereda, sammanställa, skicka in och följa upp ansökan till projektet Nordisk kartläggning kommer inte att ersättas.



Mapping sustainable textile initiatives

This report responds to an invitation from the Nordic Council of Ministers to map out Nordic initiatives within textiles as a pre-study to the initiation of a Nordic Roadmap for Sustainable Textiles in 2015. The work has been conducted by:

- SIFO - National Institute for Consumer Research (Norway)
- SFA - Sustainable Fashion Academy (Sweden)
- NFA - Nordic Fashion Association/nicefashion.org (Nordic)
- IVL - Swedish Environmental Research Institute (Sweden)
- CRI - Copenhagen Resource Institute (Denmark)

Nordic Committee of Senior Officials for Environmental Affairs (EK-M) has been responsible for the funding of this project. The project's steering committee consists of representatives from members from the working groups; Nordic Chemicals Group (NKG), the Nordic Waste Group (NAG) and the Group of sustainable consumption and production (SCP) and officers from the Environmental Protection Agency in Denmark. This steering Group is jointly responsible for the direction and decisions regarding the project. NAG has been coordinating the work. Coordinator of project has been Yvonne Augustsson from the Swedish Environmental Protection Agency.

TemaNord 2015:545
ISBN 978-92-893-4211-7 (PRINT)
ISBN 978-92-893-4212-4 (PDF)
ISBN 978-92-893-4213-1 (EPUB)
ISSN 0908-6692



9 789289 342117

