

A photograph of two women in a workshop setting. The woman on the left has curly hair and is wearing a white long-sleeved top. The woman on the right has straight hair and is wearing a dark green sweater. They are both smiling and looking at a white garment that the woman on the left is holding. The background is a brick wall with some plants.

SNAPSHOT

PUTTING CIRCULAR TEXTILES TO WORK

The employment potential of
circular clothing in
the Netherlands



ABOUT THE CIRCULAR JOBS INITIATIVE

Circle Economy is an impact organisation that connects and empowers a global community to create the conditions for transformation towards the circular economy. Our mission is to accelerate the transition through practical and scalable insights and solutions that address humanity's greatest challenges.

The *Circular Jobs Initiative* is a knowledge centre that aims to ensure the transition to the circular economy is positive for work and workers. We are committed to promoting this mission by working with employers, workers, governments, multilateral organisations, education institutions and research organisations to shape this future.

With the support of the Goldschmeding Foundation, the *Circular Jobs Initiative* develops and shares knowledge and best practices on the future of jobs for the circular economy and translates this knowledge into practical and scalable solutions.

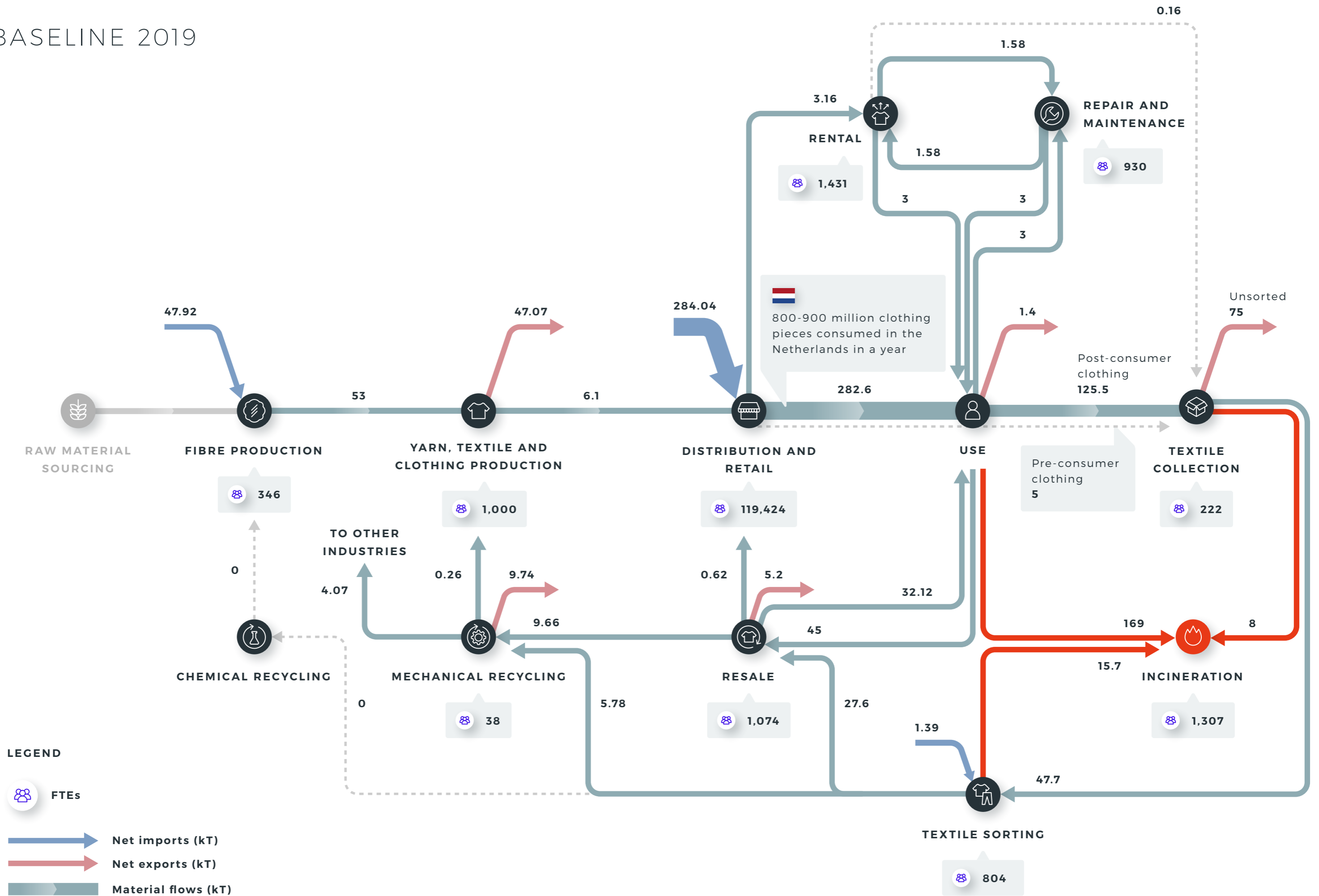
INTRODUCTION

Around 800¹ to 900² million pieces of clothing are purchased each year in the Netherlands. Women's clothing leads the way, accounting for just above half of the average household expenditure on clothing, followed by men's and finally children's. In the past few decades, clothing prices in the Netherlands have also dropped: allowing citizens to purchase more for less.³

The local clothing sector is characterised by the high presence of the retail and distribution sector which largely sells imported clothing. In 2019, the total employment of the sector was around 127,024 full-time equivalents (FTEs); retail and distribution represented 94% of the total. This activity takes into account both roles within departments of brands, wholesalers and retailers, as well as service and sales roles linked to the retail sector. However, textile collection and sorting account for less than 1% of total employment—both activities must become more relevant to realise a circular textiles industry by 2050.

A comparatively small fibre, textile and clothing industry remains, mostly focused on technical fibres and household textiles. Still, approximately 6 kT of clothing are being locally produced while accounting for 1,346 FTEs including fibre, textile and clothing manufacturers.

BASELINE 2019



CORE CIRCULAR JOBS IN THE SECTOR

Core circular jobs ensure that raw material cycles are closed. They include jobs in the repair, waste and resource management sectors. For the clothing industry, there are currently 222 FTEs core circular jobs accounted for in textile collection and 804 FTEs in textile sorting. While the management of textiles at their end-of-use is a well-established activity within the Netherlands, with 44.6% of all discarded textiles being collected separately, the textile waste generated in the country continues to grow. It rose by nearly 20% between 2012 and 2018—thus accelerating the need for more prominent separate textile collection and sorting activities. Furthermore, a large portion of textiles that are separately collected—60% (75 kT)—are still exported and sorted abroad.⁴

The clothing repair sector accounts for 930 FTEs across the Netherlands, in line with the minimal 1% of annual Dutch household expenditure that goes towards maintenance, repairs and cleaning of clothes and shoes. Yet, 77% of EU citizens have reported that they prefer to repair their products over buying new ones, demonstrating the sizable growth potential if the right incentives are put in place.⁵

Finally, the resale sector accounts for 5,968 FTEs, of which 1,074 FTEs can be attributed to the resale of clothing. Around 12.7 kT of clothing is sold annually in second-hand stores, together with other consumer goods such as furniture or books. Additionally, clothing is resold through online platforms, an emerging activity, as well as reused through more informal setups such as clothing swaps or exchanges. These alternative activities are not considered within the employment and material volumes, as data gaps currently remain from such sectors.

ENABLING AND INDIRECT CIRCULAR JOBS

Enabling and indirect circular jobs enable the acceleration and upscaling of core circular activities, and thus form the supporting shell of the circular economy. They include jobs that contribute to circularity in rental, leasing and digital technology development, as well as in cleaning. In 2019, clothing rental and leasing activities in the Netherlands employed 1,431 FTEs, and the washing and cleaning of textiles employed 6,958 FTEs.

Indirect jobs, such as those in transport logistics, education and governmental offices, provide services to the primary circular activities described above and thus form the activities that indirectly uphold the circular economy.



THREE SCENARIOS FOR CIRCULARITY

Departing from the current baseline of existing jobs pertaining to the clothing sector in the Netherlands,⁶ three scenarios were developed. These outline various circular value chains which could support the Netherlands in achieving full circularity in the textiles sector by 2050.

SCENARIO 1 CHANGING CONSUMPTION PATTERNS

The year is 2050; the Netherlands sees a reduction in the amount of new clothing consumed. Dutch residents prioritise extending the service life of the clothing available through renting, resale, swapping, repairing and leasing. Rental and leasing represents 10% of the clothing consumed each year, formal resale 15%, informal resale another 15% and repair 12%. This also means that lower volumes of clothing are discarded each year. When garments are finally discarded, they are clearly worn out, rendering them no longer suitable for resale, but rather for recycling.

This scenario has the potential to increase total jobs in the sector by 20% throughout our quantitative analysis. Although this number is not as high as for scenario two, a strong shift towards service-based consumption models creates significant potential for an increase in enabling and indirect jobs such as washing, cleaning, software development and logistics. For example, let us consider the current textile washing and cleaning activities: in 2019, this sector employed 6,958 FTEs throughout their operations, hence, an increased need for the further development of these services opens up an opportunity for local employment, in close proximity to the places of consumption. Similarly, with an increase in local resale, repair and clothing adjustments may also increase in tandem, creating new opportunities for local seamstresses and independent repair

shops. A significant reduction of 28% in FTEs in the distribution and retail of first hand sales was also measured in this scenario, although this could be tackled by job transitions into other service-based models such as resale and rental. The end-of-use value chain also sees a reduction in job opportunities in this scenario, all the way from textile collection to recycling operations.

FTEs	BAU 2050	Scenario 1	% vs BAU 2050
Import/exports	664	471	-29%
Fibre production	512	512	0%
Yarn, Textile and Clothing	1,448	1,443	0%
Distribution & Retail	114,356	82,108	-28%
Repair and Maintenance	1,357	17,927	1,222%
Resale	6,981	28,912	314%
Rental	1,860	21,730	1068%
Textile collection	308	621	102%
Incineration	1,716	1,477	-14%
Sorting	1,103	946	-14%
Recycling	49	16	-68%
Total	130,354	156,164	20%

BAU: Business-as-Usual

SCENARIO 2 PRIORITISING CLOTHING REUSE

The year is 2050; businesses and government in the Netherlands have prioritised reuse as a key strategy in diverting and cycling textiles away from landfills and back into active use. Garments change ownership from one consumer to another, but are mostly reused for their original purpose, including alterations linked to repair and maintenance of post-consumer textiles collected that need restoration in order to be resold.

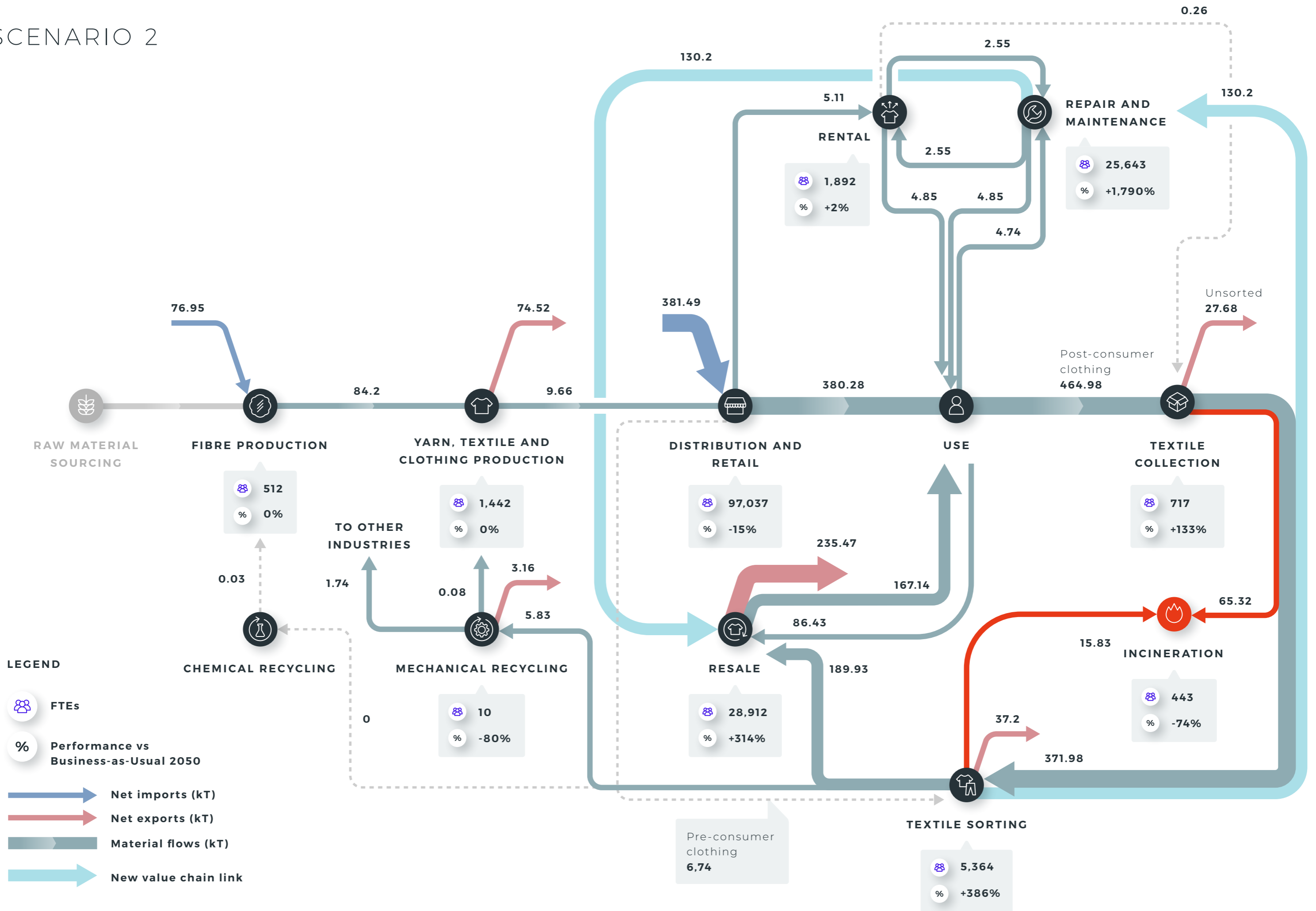
There has been a strong increase in local textile collection (approximately 80% of what is sold annually) and local sorting (80% of collected textiles), as well as of local reuse, due to a growing second-hand market in the Netherlands and the success of other repair, maintenance and cleaning services. This increase in the reuse of clothing also comes from significant changes at the design and production phases in connection to the quality and composition of the materials used.

This scenario shows the most potential for an increase in total jobs in the sector: 25% throughout our quantitative analysis. This entails creating 24,286 potential new FTEs in the repair and maintenance stages, and the potential of shifting approximately 17,319 FTEs from new sales to second-hand sales, as well as creating an additional 4,611 FTEs.

FTEs	BAU 2050	Scenario 2	% vs BAU 2050
Import/exports	664	733	10%
Fibre production	512	512	0%
Yarn, Textile and Clothing Production	1,448	1,442	0%
Distribution & Retail	114,356	97,037	-15%
Repair and Maintenance	1,357	25,643	1,790%
Resale	6,981	28,912	314%
Rental	1,860	1,892	2%
Textile collection	308	717	133%
Incineration	1,716	443	-74%
Sorting	1,103	5,364	386%
Recycling	49	10	-80%
Total	130,354	162,705	25%

BAU: Business-as-Usual

SCENARIO 2



SCENARIO 3 SCALING RECYCLING AND LOCAL FIBRE PROCESSING

The year is 2050; the circular clothing industry in the Netherlands places a strong focus on textile-to-textile recycling. End-of-pipe solutions have been developed and implemented at scale. There has been a strong increase in local textile collection (approximately 80% of what is sold annually) and local sorting (70% of collected textiles). Processing technologies that enable textile-to-textile recycling have been developed and scaled, and are financially feasible for industry stakeholders to implement. The large amounts of recycled fibres readily available are incorporated into new yarns and textiles, made possible by changing the design of their operations, products and sourcing strategies.

This scenario shows a potential increase in total core circular jobs in the sector of 14% throughout our quantitative analysis, creating 433 potential new jobs in the recycling field, as well as further developing the existing fibre processing, spinning, weaving and knitting activities locally. This would increase fibre and textile manufacturing by 5,000 FTEs. This scenario also holds the most potential for technological development and regional coordination with other manufacturing or recycling hubs to spread and develop capacity across Europe. Although this scenario shows the lowest potential increase in total jobs, it also conveys the most stable scenario for all value chain operations, with no significant employment loss occurring for any activity.

FTEs	BAU 2050	Scenario 3	% vs BAU 2050
Import/exports	664	729	10%
Fibre production	512	1,392	172%
Yarn, Textile and Clothing Production	1,448	5,568	285%
Distribution & Retail	114,356	111,064	-3%
Repair and Maintenance	1,357	1,380	2%
Resale	6,981	19,275	176%
Rental	1,860	1,892	2%
Textile collection	308	759	147%
Incineration	1,716	795	-54%
Sorting	1,103	4,992	352%
Recycling	49	482	883%
Total	130,354	148,329	14%

BAU: Business-as-Usual

Through this snapshot we aim to provide high-level insights into the preliminary quantification of potential job creation and job losses related to the circular supply chain scenarios in the Netherlands by 2050. During the upcoming months, the project will focus on qualifying their potential to open up employment opportunities for vulnerable workers, as well as assessing the skills needs related to the scenario with the highest identified potential for positive social impact.

ANNEX

PARAMETERS & ASSUMPTIONS

The following table shows the activities considered within each value chain stage, as well as the share of this activity that is allocated to the clothing sector:

VALUE CHAIN STAGE	SBI ACTIVITIES	SHARE	REASONING
Fibre Production	116 Growing of fibre crops 1451 Raising of sheep	10%	Most textiles and yarns manufactured in NL are from aramid fibres, other technical fibres, or for home textile uses such as carpets. Only 10% of fibre production is assigned to clothing.
Textile & Clothing Manufacturing	1310 Preparation and spinning of textile fibres 1320 Weaving of textiles 1330 Finishing of textiles 1391 Manufacture of knitted and crocheted fabrics 1431 Manufacture of knitted and crocheted hosiery	-	Manufacturing as a whole for the Netherlands was considered at 1000 FTEs, after a series of conversations with stakeholders. Manufacturing in SBI and LISA databases constitutes a much larger sector due to many retail and wholesale companies still being registered under the manufacturing codes, while no longer manufacturing within the Netherlands. ⁷
	1411 Manufacture of leather clothes 1412 Manufacture of work wear 1413 Manufacture of other outerwear 1414 Manufacture of underwear 1419 Manufacture of babies' garments and sports clothing and clothing accessories 1439 Manufacture of knitted and crocheted apparel (no hosiery)	-	

Textile & Clothing Manufacturing	7410 Industrial and fashion design	50%	Fashion designers were considered to be 50% of the SBI code 7410 Industrial and fashion designers
Distribution & Retail	46411 Wholesale of clothing fabrics and haberdashery 46421 Wholesale of upper clothes 46422 Wholesale of work clothes 46423 Wholesale of underwear 46425 Wholesale of clothing accessories 47511 Shops selling clothing fabrics 47711 Shops selling menswear 47712 Shops selling ladies' wear 47713 Shops selling outerwear and clothing accessories (non-specialised) 47714 Shops selling baby- and children's clothes 47715 Shops selling various baby articles 47716 Shops selling underwear, foundations etc. 47717 Shops selling clothing accessories 4782 Retail sale of textiles, clothing and footwear via markets 47914 Retail sale via internet of clothes and clothing accessories	100%	-
	46761 Wholesale of textile raw materials and textile semi-finished products	10%	Most textiles and yarns manufactured in NL are from aramid fibres, other technical fibres, or for home textile uses such as carpets. Only 10% of textile manufacturing and retail is assigned to clothing.

Imports & Exports	4611 Agents involved in the sale of agricultural raw materials, live animals, textile raw materials 4616 Agents involved in the sale of textiles, clothing, footwear and leather goods	100%	The kT of imports and exports were only considered as net imports or net exports, understanding that the flows of materials that link to local employment have to do with net ones mostly.
Repair & Maintenance	9523 Repair of footwear and leather goods 9529 Repair of other consumer goods	74%	This share has been assigned based on the average EU household consumption where 74% of expenditure goes to clothing, 17% to footwear and 8% to household textiles. ⁸
Textile Collection	3811 Collection of non-hazardous waste	1.4%	7.9 kg/inh of textile waste are collected separately from a total of 552 kg/inh of waste per year ^{9,10}
Textile Sorting	3811 Collection of non-hazardous waste	-	There is no separate consideration of clothing and textiles within SBI codes for sortation. Therefore this value chain stage was calculated based on stakeholder input: Sorting is a two-step process. The speed for pre-sorting sorts between 310-360 kgs an hour per worker. Fine sorting output is 135-190 kg output per hour per worker. ¹¹ This means that there are between 235-273 FTEs of pre-sorting (141kT) and between 396-557 FTEs of fine sorting for whole flow (125.3kT=141 kT - 15.7 kT discarded in pre-sorting). Additional roles in the facilities (internal transport, baling, managers, etc) were calculated considering an extra 10% of employment to the sorting FTEs. Therefore, we can get an overview of the number of FTEs at the sorting stage in NL.

Resale	47792 Shops selling second-hand clothing	100%	-
Mechanical Recycling	3832 Recovery of sorted materials	-	There is no separate consideration of clothing and textiles within SBI codes for recycling. Employment for recycling is considered at 6.6 FTE/kilotonne of material processed. ¹² For 5.7kT of materials processed per year this points at 37.6 FTEs
Chemical Recycling	3832 Recovery of sorted materials	-	There is no separate consideration of clothing and textiles within SBI codes for recycling. Employment for recycling is considered at 6.6 FTE/kilotonne of material processed. ¹³ For the baseline there is no employment considered as this sector is currently too small to quantify. However, in future scenarios, this assumption for employment is taken into account.

The following are the assumptions and parameters set for the quantitative model of employment effects:

INDUSTRY GROWTH

The yearly growth of the textile industry was about 3% (2.7% in 2019) since the past 10 years but in 2020 strong degrowth due to covid-19. We consider a growth in the overall sector for the total production (in kT) of 1.5% per year. In the baseline 2050 scenario, the growth rate of the overall clothing sector in terms of kT produced can be changed by the user of the model to provide estimates for different growth scenarios.

POPULATION GROWTH

The total population in the Netherlands in 2050 will grow by 0.2% in comparison with 2020. Age repartition is about the same from 2020 to 2050. Number of persons per household is constant (2.2 pers/hh and 1.5 adult eq./hh).

EMPLOYMENT FTE

All part time employment was considered 0.5 FTE as an average.

INDIRECT EMPLOYMENT

Indirect effects on the employment were not included in the quantitative model (on other sectors that can be impacted e.g. R&D, education, logistics, transportation, cleaning etc.) due to lack of data and to stay on the conservative side. These will be addressed during the qualitative analysis.

INFORMAL RESALE

This is considered the paid reuse of garments which is exchanged or passed onwards to others without any formal employment attached to it. These kT were calculated based on the ratios extracted from a recent study for Flanders (Delanoeije and Bachus, 2020). Informal unpaid reuse was not considered in this model, as it does not affect neither budget nor employment.

PRODUCTIVITY

Productivity is calculated from product value to be able to account for use which is in product value. In the circular scenarios, productivity was taken as per the third quartile per stage – expecting the market will grow in the circular sector and thus companies will become more efficient – also new technology will arise so less labour would be needed. For sectors with degrowth (e.g. retail), we keep high productivity to be on the conservative side.

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