Knowing your supply chain

Mapping, tracing and disclosing upstream suppliers in the garment sector

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### Background

The consensus contained in the UN Guiding Principles on Business and Human Rights in 2011 lays expectations upon businesses to prevent, address and remedy (where there have been abuses) human rights abuses, by carrying out human right’s due diligence. Considering how a business may be directly linked or even contributing to severe human rights impacts beyond its direct business partners, companies are expected to perform such due diligence at all different stages of their value chain.

A crucial step for companies is to conduct a scoping exercise to understand actual and potential human rights risks in the value chain (hotspots/country risk, sourcing model risk factors). This is underpinned by identifying the different actors and production locations across the supply chain. Having visibility of the value chain (beyond direct suppliers) in order to identify and address risks is key. There is a clear expectation for clothing brands and retailers to map beyond the Cut Make Trim (CMT) phase, with traceability a key enabling strategy for identifying and assessing issues upstream. Although traceability is separate from public disclosure of such data, disclosure may help to improve the quality of due diligence by empowering rightsholders and stakeholders to raise issues. Unsurprisingly, traceability for due diligence as well as public disclosure of the supply chain is increasingly receiving endorsement by governments and civil society and has been increasingly adopted by business.

This memo aims to provide guidance to clothing brands and retailers who want to expand traceability in the upstream supply chain. It presents four distinct, but complementary strategies to gain a better insight of the supply chain: building on existing product-based certification systems; through trust building of intermediaries or by means of increased control; the nomination of specific suppliers; and recent more technological developments. While the information gained through one single strategy, or even by one single brand or retailer may not always be complete or fully accurate, it is important to see traceability as a step-by-step process in which continuous progress is essential.

From a due diligence perspective, these distinct approaches are helpful. For example, product level traceability may improve the visibility of business relationships further up the supply chain, where brands do not have direct contractual relationships. However, it may not be necessary or feasible to have traceability for the whole supply chain, and companies may prioritise traceability for high-risk product lines.

Cooperation is a crucial element of supply chain mapping. Within a specific company, different sources of information about the supply chain may already exist, for example within fabric technology or design teams. However, external

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1 The UN Guiding Principles are a policy framework affirming that states have a duty to protect and business has a responsibility to respect human rights and should carry out human rights due diligence.


3 Frank Bold et al (2021), The European Commission must take action to improve the reporting obligations of companies on sustainability issues. Available at: https://en.frankbold.org/sites/default/files/zpravodaj/statement_eu_legal_corporate_sustainability_reporting_framework.pdf

collaboration is equally important as different actors within the supply chain can provide useful additional information. These include employer associations, workers’ unions, civil society organisations and public authorities. Every actor plays a role and has various strengths that can be leveraged when traceability information is publicly disclosed.

**Traceability Systems**

The garment sector is known for its complex and opaque supply chains, comprised of numerous interlinked businesses. Traceability is a process which focuses on mapping the entire supply chain, thus providing insights beyond direct contractual relations.

The UN Economic Commission for Europe (UNECE) defines traceability (based on the ISO definition) as “the ability to identify and trace the history, application, location and distribution of products, parts and materials to ensure the reliability of sustainability claims in the areas of human rights, labour (including health and safety), the environment and anti-corruption; and the process by which enterprises track materials and products and the conditions in which they were produced through the supply chain”. The OECD Due Diligence Guidance for Responsible Supply Chains in the Garment and Footwear Sectors defines traceability as “the process by which enterprises track materials and products and the conditions in which they were produced through the supply chain”.

Traceability tends to be understood as the ability to know the history or location of a product, or component of a product, which may differ from mapping and identifying actors and locations in the supply chain. It is therefore an important component of a supply chain visibility strategy required to conduct due diligence, and related public disclosure.

Achieving traceability can be challenging, considering the specific systems that need to be developed to gather data at various levels of the production chain. This not only requires (costly) investments in processes and technology but may also pose additional issues concerning data protection and challenges in securing cooperation from reluctant supply chain partners, who may have legitimate concerns of participating in traceability processes (e.g., fear of being cut out).

Building and strengthening a traceability system gives garment brands and retailers a better understanding of the supply chain. Such a system is an essential step in preventing human rights abuses, but it can also provide improved operational outcomes and efficiencies, which in turn may lead to cost-saving. Improved traceability also increases the accuracy of product information such as product quality, safety and labelling. It is becoming increasingly necessary for companies to introduce a traceability system in order to respond to stakeholder pressure for more accurate product information and responsible procurement practices, legal requirements and consumer demand. Added benefits include better proof of authenticity, fighting counterfeiting and providing reliable evidence for sustainability claims that are of increasing interest to consumers.

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1. Traceability through existing certification schemes

Certification schemes are built on traceability mechanisms that assure the credibility and integrity of certified products against specific environmental or labour standards. Supply chain actors that participate in these schemes are expected to record and communicate data at different stages of product transformation. To be successful, well-built data management systems with sufficient storage capacity need to be in place.

In the garment sector, numerous schemes certify a specific product or quality further down the supply chain, such as organic cotton. Each relies on a different traceability system; some track specific batches of raw materials/components, while others use an alternative model.7

In some cases, the journey of different products, parts and materials is recorded and tracked along the supply chain as they are processed and ultimately distributed as an end product. Depending on the objective, a traceability system may follow a chain of custody, from the raw material sources to the end product in the stores. In other certification schemes, identifying and addressing human rights impacts does not require tracing all components or raw materials so low risk stages in the value chain might not require segregated traceability or chain of custody.

There are three main models of how traceability systems assure integrity at each step in the supply chain; the product segregation model, the mass-balance model and the book and claim model. Depending on the approach chosen, specific product materials can be linked to certified suppliers (the product segregation model) or relational links are obscured (mass-balance and book & claim).

The Product Segregation model

The product segregation model is built on physical separation of ‘certified’ and ‘non-certified' materials throughout all production stages. Using this strategy, businesses are given assurances that certified and non-certified materials in products are not mixed and that the final products originate - or contain elements that originate - from a certified farm. Supply chains can be fully or partly segregated, as it’s possible that companies aren’t able to purchase enough certified products for a fully segregated supply chain. Some certification regimes, therefore, require a minimum percentage proportion of the certified ingredient in the end-product.

This model is costly because it involves rigid controls on the storage, transport and use of certified materials. For example, separate tanks and silos need to be in place for the storage of the certified materials and strict supervision is needed to ensure that certified materials are not mixed with non-certified.

There are two approaches to the segregation model:

- **Bulk commodity**: certified materials are separated from non-certified materials. The mixing of certified materials from different farms and producers is allowed as long as they all comply with the certification standards.8

- **Identity preservation**: segregation of the certified material from the non-certified material is required and

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8 Examples include Global Organic Textile Standard (GOTS) and ECOCERT.
mixing of certified materials from various suppliers throughout the value chain is not allowed. This provides traceability from the specific originating farm or primary processor to the final users. This is very cost and resource-intensive, as constant monitoring at each stage is required.\(^9\)

The segregation model supports the most robust traceability in terms of identifying the journey of a single product. Although it entails a more costly process, it is also the model where new technical innovations such as DNA marking technology could have the most impact, both in sharply reducing costs and in proving quality or origin claims.

**Mass Balance Model**

The mass balance model allows a company to state that it requests a specified ingredient or component has been sourced from certified farms or facilities.\(^10\) Although the requested quantity is produced, it may or may not end up in the company’s final product. The overall quantity of the certified ingredient cannot surpass the total quantity of that ingredient or component used in manufacturing the end-products. This volume-based system is more common for products where segregation of materials is difficult or very costly, like cotton. Certified and non-certified materials can be mixed, however the exact volume (tracked as units) of certified material entering the value chain must be controlled and match an equivalent volume of units passing through the value chain. The product cannot claim to contain certified material since it is unknown if the physical material in the end product originated from a certified supplier.

An advantage of the Mass Balance model is that it makes it more affordable for companies to support or make a positive contribution to certified ingredients or materials. However, businesses are unable to determine whether a specific product contains certified or non-certified materials or a mixture of both. The only assurance is that the brand or retailer has a supply chain that creates a demand for a certain volume of ingredients from certified farms or facilities.\(^11\)

**Book and claim model**

This model is a certificate trading programme currently only used in the palm oil industry.\(^12\) A company receives sustainability certificates for the volume of certified materials that it puts in at the start, but certified and non-certified materials can flow freely throughout the supply chain. When unable to directly purchase from certified suppliers, manufacturers may instead choose to purchase sustainability credits produced by certified mills in other regions of the world. By buying credits via a marketplace, companies directly reward farmers and producers for their sustainable practices and products. This stimulates the production of sustainable materials, supports the farmers in their livelihoods and increases the availability and quantities of sustainable products over time.

2. Traceability through supply chain partnership

Some brands and retailers have adopted a partnership approach to better understand and map out their supply chain.\(^13\) Rather than using a technical traceability system, businesses collaborate with existing direct suppliers to collect

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\(^9\) An example is the Fair Trade Cotton Mark  
\(^10\) See also the description of BCI https://bettercotton.org/what-does-our-logo-mean/  
\(^11\) Examples of this approach include the Better Cotton Initiative and FSI Cotton from Fairtrade  
\(^12\) See the RSPO standard  
\(^13\) This section draws largely on a project between the Dutch Agreement on Sustainable Garments and Textile (AGT) in collaboration with the Fair Labor Association (FLA). The objective of the partnership was to support companies to better and understand their upstream supply chain. Also, see here for the full references:
and transfer upstream supply chain data. This process-based approach is based on several key principles for supply chain mapping which are briefly summarised here:

**Trust-building**

Trust is essential for successful supply chain mapping. Otherwise, suppliers may hesitate to give insight into their own supply chain. Instead of demanding information from a supplier, brands and retailers should focus on seeking cooperation based on willingness. It is vital to provide reassurances and support to suppliers in case of issues or risks encountered, or whenever they have limited influence over sub-suppliers. Suppliers involved in this process can also request a credible commitment from buyers to not engage with their suppliers directly or provide the details of key suppliers to other garment manufacturers.

It is important to understand underlying power-relations and interests when adopting this approach to traceability. For example, it is important to emphasise non-retaliation. In situations where there is information missing or if the information is incorrect, it is essential that brands and retailers provide support to suppliers, ask for an explanation and work towards improvement. In this situation missing information should not be seen as a sign of non-compliance or lack of trust, but as a learning point for both parties. It is recommended that brands and retailers try to understand the challenges or sustainability risks for the other party involved and to jointly think about steps for improvement.

**Co-creation**

All partners and supply chain stakeholders must be involved throughout the process of implementing a traceability system, starting from its initial design. This allows feedback from the parties to be integrated as the system is rolled out, ensures a better understanding of the scope and objectives of the initiative, promotes participation and paves the way for the development of tools that are easy to use by partners.

Furthermore, co-creation enables stakeholders to explore how the mapping of supply chains can help them strengthen their business. It may also help to provide companies with an understanding of how their suppliers make decisions about which suppliers and subcontractors to work with, and what criteria they use to select suppliers (e.g., word of mouth, long term business association, business leverage, geographical location, family relations, certifications of social standards).

**Transparency**

Open and transparent communication should be embedded into engagement between supply chain actors. Companies should work with their suppliers to explain the tools used to collect the data, highlight the advantages for the suppliers and build understanding based on transparency. It is recommended that companies commit to compensate the time investment that is required from suppliers, for example through order guarantees, long-term contracts or by making them a preferred supplier.

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https://www.imvoconvenanten.nl/en/garments-textile/tools/child-labour/tools Other industry initiatives have spearheaded similar approaches.

14 See Obser S. (2016) Facing the Challenge of Supply Chain Traceability - A Feasibility Study along the Textile and Garment Supply Chain in Bangladesh. Available at: https://www.researchgate.net/publication/308376121_Facing_the_Challenge_of_Supply_Chain_Traceability_-_A_Feasibility_Study_along_the_Textile_and_Garment_Supply_Chain_in_Bangladesh
Equally crucial is the company’s engagement beyond direct suppliers. Several certification and monitoring systems already require (upstream) businesses to visit their (sub-) suppliers and subcontractors. It is important to ask upstream suppliers about these visits and find out if and what documentation is collected.

**Timelines**

Supply chains in the garment and textile sector are very dynamic and relationships between suppliers often change. Hence, regularly updating information is vital. Whenever there is a substantial time gap between placing orders and production (one month or more), it is recommended that companies request the ‘tier two’ supplier data from the ‘tier one’ supplier twice: (1) at the time of the order and (2) once the production commences.

**Cooperation**

Brands and retailers often share suppliers. Cooperating with other companies in supply chain mapping projects can support the development of better approaches and tools. To achieve this, it can be helpful to focus on a specific region (e.g., Tamil Nadu), product (e.g., jeans) or material (e.g., viscose).

The partnership approach enables different supply chain actors to have ownership of the traceability and transparency process. At the same time, it can be resource intensive and therefore more appropriate in longer-term commercial partnerships with suppliers. Core products that a company always purchases provide a better platform for trusting, long-term, mutually beneficial and transparent relationships. This approach may not be viable for companies with more dynamic business models that continually pivot based upon several factors, making it more difficult to procure information from suppliers about their supply chains.

3. **Working through nominated suppliers**

Selection and assessment of supply chain partners by the brand or retailer can support traceability and better control over the supply chain. There are two main approaches to sourcing materials. In one, orders for garment production are given to a particular factory and the brand relies entirely upon the manufacturer to choose the fabric, cotton or other raw materials. In the other, the brand or retailer is more specific and prescribes that factories should source specific materials from a nominated second-tier contractor, such as a textile mill. For example, this approach has been used to enable standardisation of products and the improvement of quality control of dyed textiles, to ensure that inputs used by different apparel manufacturing facilities have the same colour.

Appointing nominated suppliers can support traceability of the materials used in the products, as materials are more easily traced back to specific farms, ginners, spinners, mills and other production facilities.

In certain business models, this approach may overlap with some of the material and quality control processes. However, it is most effective in stable long-term partnerships and/or when large volumes are procured from the same facility such as in the production of “basic” garments. Jeans, khakis and t-shirts use the same fabric year after year so designers might choose to work more closely with the mills making those fabrics, especially when the brand is known for – and customers expect – a certain fabric quality or feel.

15 The AGT/FLA Guidance recommends every six months to one year. However, the OAR demonstrates that contributors are in practice updating more regularly, namely every quarter or even month.
Adopting longer term sourcing relationships can also facilitate the broader human rights due diligence objectives of a company. The drawback to this approach is that it may provide little visibility further upstream from the textile mill. However, if the facility is vertically integrated and thus also spins and weaves or knits, then there is much greater transparency to the origin of the cotton.

4. External and innovative solutions

Recent years have seen the rapid emergence of a number of technological solutions to trace specific products. These can range from RFID technology\textsuperscript{16}, DNA-based markers or even forensic and data science and may diverge a lot in terms of scope, reliability and cost. Some capture very specific parts of data (e.g. dye used) whereas others have a broader scope of application.

Different technologies can be applied at different stages of processing and production. Some may survive specific processing stage (e.g. dyeing/washing), while others may not. Some may be more successful at certain stages (e.g. before the yarn is spun and various fibres blended together) than others (e.g. spinner to textile mill to CMT).

There is potential to combine these technological solutions with blockchain and AI, as the introduction of more efficient ways of recording, analysing and sharing information along the supply chain become available. For example, blockchain can offer a more secure format for sharing documentation through the various tiers of the value chain to trace chain of custody. However, these methods only go as far as the reliability of the information and it remains important to have credible systems in place for when the data is first entered, at risk of passing false or inaccurate information.

In this respect, some post-hoc data solutions may complement other supplier data collection mechanisms as well as broader due diligence processes. For instance, information on the presence of a facility within a supply chain through a certificate or DNA-based marker can be normalised, validated or even combined with other data obtained through publicly available sources (e.g. opencorporates or Open Apparel Registry). It is expected that a number of these solutions will have a significant impact on lowering the cost of traceability.

Recommendations

\textit{Clarify the reason for mapping, tracing and/or disclosing}

Traceability is an integral part of carrying out human right’s due diligence throughout the supply chain. The choice and adoption of approaches depends on the level of commitment of brands to address human rights impacts upstream. Some methods can open up new ways of validating claims of quality, origin and sustainable production which can be communicated to customers. However, if seen merely as a “tick the box” exercise, building traceability and disclosure will yield limited results.

\textit{Identify where the biggests risks are}

A company’s traceability journey should be driven by where it is likely to encounter the most salient risks. It is recommended to focus on the most severe and likely risks and tailor the type of traceability system needed to identify and address those risks, as different stages of the supply chain and different risks may need different methods.

\textsuperscript{16} Radio-frequency identification (RFID) uses electromagnetic fields to automatically identify and track tags attached to objects.
Identify which approach works
The different approaches have different applications. In many cases they may be applied together to strengthen understanding of the supply chain. For example, combining approaches based on collaboration with supply chain partners (the nominated supplier and supply chain partnership approach) with product-level traceability can help to build stronger supply chain knowledge and data flows. However, this might not be practical in supply chains where risk mapping has identified higher risks further upstream or among actors not known or not within the system (e.g. subcontracting).

While some regimes, especially product-segregation, provide companies with a platform to increase the understanding of the supply chain, it is important to look carefully under the hood and understand their limitations. For example, Fair Trade Cotton, Better Cotton Initiative and Cotton Made in India use a combination of segregated and mass-balance, and cannot not provide full visibility. Other organic certifications systems (e.g. Global Organic Textile Standard (GOTS), GRS and ECOCERT) use a segregated approach, but might have weaknesses in practice.17

Don't start from scratch
Companies should also explore how to leverage internal data systems to support traceability strategies. There may be more data than expected, so a good start is to undergo a process of identification and consolidation. It may be necessary to find ways to integrate legacy databases.

Looking beyond the company itself, there are numerous organisations operating within the apparel sector that provide traceability products and services. Utilising external solutions can increase robustness and data quality, but may be costly and have limitations on data accuracy.

Clarifying costing between supply chain partners
Setting up a traceability system has financial implications. In particular, certification regimes for upstream products and actors involve a tradeoff between data quality and cost. Traceability systems might have upfront costs that require significant investment, but reduce over time. Some innovative solutions such as DNA marking can in practice dramatically reduce costs moving forward.

At the same time, improved traceability (and public transparency) might equally lead to efficiency gains for supply chain actors. Therefore there is a need to calibrate the selected approach to the traceability objective, as well as ensure that costs and efficiency gains are fairly distributed throughout the chain.

Consider collaboration
Companies should consider adopting a traceability system that integrates publicly available data or uses collaborative approaches to supply chain mapping. External data sources and collective repositories such as the Open Apparel Registry can significantly contribute to the validation and normalisation of data, leading to better quality data while also reducing costs. In this respect, the importance of centralised platforms that can be accessed by various stakeholders cannot be underestimated. Platforms allowing data to be captured and uploaded throughout the production process reduce the need to start capturing all data at the brand/retailer stage. Similarly, aligning the definitions and data structure at an industry level will equally be important. In this respect, the work under development at the UN EC E is important.

See disclosure as learning and an ongoing practice

Company disclosures of supply chain data feed into the “ecosystem” of available data within the industry. It is recommended that brands and retailers start disclosing available data relatively early on in the traceability process, even if not every actor or product in the supply chain has been mapped. In terms of frequency, a quarterly or even monthly disclosure is becoming regular practice. Finally, in order to serve sector-level learning, it is highly recommended to publish in a open data standard.18

References


18 See Open Data Standard for the Apparel Sector, https://odsas.org