



HARMONITOR

Grant agreement n°: 101060133

Project acronym: HARMONITOR

Project title: Harmonisation and monitoring platform for certification of bio-based systems

Inventory and characterisation of identified CSLs and selection of bio-based value chains

Project Deliverable 2.1

Date of deliverable: 31/05/2023

Actual submission date: 31/05/2023

Version: [1.0] | 31/05/2023

www.harmonitor.eu

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Research Executive Agency (REA). Neither the European Union nor the granting authority can be held responsible for them



This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement N° 101060133

REPORT

Lead Beneficiary	DBFZ
Authors (Organisation)	Stefan Majer, Beike Sumfleth, Josephin Helka (DBFZ) with contributions from Utrecht University, Radboud University, SQ Consult, BTG Biomass Technology Group, Preferred by Nature, RINA, agroVet, GRAS
Responsible Author	Stefan Majer, stefan.majer@dbfz.de
Deliverable Type	Report
Dissemination Level	Public

DOCUMENT HISTORY

Version	Description
0.1	First Internal draft
0.2	Second Internal draft
0.3	First Review draft
0.4	Final draft
1.0	Final



CONTENTS

1	Summary.....	4
2	Introduction.....	7
2.1	Scope and structure of this Deliverable	7
3	Methodology.....	8
3.1	Developing a CSL inventory for the HARMONITOR project.....	8
3.1.1	Definitions.....	8
3.1.2	Process for the selection of CSLs	9
3.2	Selecting value chains as starting points for HARMONITOR.....	11
4	Results - selected CSL and value chains.....	16
4.1	Selected Certification Schemes and Labels.....	16
4.2	Selected Value Chains.....	24
5	Outlook.....	33
	REFERENCES.....	35

1 SUMMARY

The project HARMONITOR (harmonisation and monitoring platform for certification schemes and labels to advance the sustainability of bio-based systems) will improve the effectiveness of certification schemes and labels (CSLs) in different sectors of the EU Bioeconomy and therewith strengthen their use as a co-regulation instrument.

To achieve these objectives, HARMONITOR develops a monitoring system, in close cooperation with its sister projects SUSTCERT4BIOBASED and STAR4BBS. Furthermore, dedicated assessment activities analyse the status of sustainability certification in the EU bioeconomy and finally, HARMONITOR develops a platform for the cooperation and continuous improvement of CSLs.

The basis for these activities is a joint definition of starting points for the project, which include the development of an inventory of CSLs and bio-based value chains. These starting points can be used by all HARMONITOR tasks and partners for respective analysis and assessment steps in HARMONITOR WPs 3, 4, 5 and 6.

The selection has been organised in a joint process with WP2 partners, following a desktop and literature review and analysis, combined with an internal survey to identify those CSLs and value chain elements that could be of specific importance for the subsequent WPs. For the value chains, the selection was based on the further assessment of the findings from WP3 presented in D3.1.

The final inventory of CSLs and value chains for HARMONITOR aims to cover a representative mix of relevant and also innovative CSLs and bio-based products with focus on various feedstocks (including residues and wastes) and a broad range of bioeconomy sectors that are relevant for EU policy making. The inventory of selected CSLs is included in Table 1. The CSLs are further described in section 4.1.

Table 1 CSL inventory for HARMONITOR. own table.

Title of the scheme
Alliance for Water Stewardship (AWS)
Aquaculture Stewardship Council (ASC)
Better Biomass
Better Cotton
Bioplastic Feedstock Alliance (BFA)
Bonsucro
BRCGS Ethical Trade and Responsible Sourcing
BREEAM
Carbon Trust Product Footprint Certification
Cradle to Cradle Certified
EU Ecolabel - Paper

EU Ecolabel - Textiles
EU organic farming logo
Fairtrade International
Fairtrade International Textile Standard
Forest Stewardship Council (FSC)
GlobalG.A.P.
Global Organic Textile Standard (GOTS)
Global Reporting Initiative (GRI)
Global Seafood Alliance (GSA)
Gold Standard
Green Gold Label (GGL)
ISCC EU & ISCC PLUS
Marine Stewardship Council (MSC)
Nature Care Products (NCP) Standard
Naturtextil IVN certified BEST
OK biobased
Pacific Organic Standard
PEFC International (Programme for the Endorsement of Forest Certification)
Rainforest Alliance
Recognised
REDcert, REDcert ²
Round Table on Responsible Soy Association (RTRS)
Roundtable on Sustainable Biomaterials (RSB)
Roundtable on Sustainable Palm Oil (RSPO)
SAI Platform - Farm Sustainability Assessment FSA
SGE 21
Sustainable Agriculture Network (SAN)
Sustainable Biomass Program (SBP)
Sustainable Forestry Initiative (SFI)
Textile Exchange
Together for Sustainability (TfS)
Verified Carbon Standard (VCS)

A large number of CSLs from different sectors relevant to the EU bioeconomy, covering both innovative and established value chains, could be selected to provide a project inventory and a basis for further work in HARMONITOR. These CSLs cover a wide range of different social and

environmental sustainability requirements (compare section 3.1). The selected CSLs from Table 1 can serve as a basis for developing a harmonization and monitoring platform to advance the sustainability of bio-based value chains. Additionally, Table 2 illustrates the comprehensive selection of value chain elements for HARMONITOR. This selection encompasses a diverse array of biomass feedstocks, sourced either from Europe or imported from other regions. It encompasses a combination of cultivated biomass, biomass residues, and waste materials, along with innovative and promising feedstocks like algae. The chosen processing steps primarily target the production of pre-products, which find applications across a wide range of industries. The emphasis on pre-products is rooted in the primary objective of the HARMONITOR monitoring system, which is to assess the effectiveness of business-to-business certification schemes.

Table 2 Value chain inventory for HARMONITOR. own table, based on results of WP 3, D 3.1.

Nr.	Feedstocks		Pre-products 1		Pre-Products 2
1	Sugarbeet (a. EU; b. US)	to	Butanediol	to	Polymers (e.g., Polyurethane)
2	Sugarbeet (a. EU; b. US), c. Palm, d. UCO	to	Ethylene glycol / Polypropylene	to	Bioplastic (e.g., PET, PLA)
3	a. Corn (US), b. Wheat Grain (EU)	to	Lactic Acid	to	Thermoplastic Polyester (e.g., PLA)
4	Palm oil, Soy, Canola, UCO	to	Polypropylene glycol, Butanediol, Epichlorohydrin	to	Solvents
5	Algae	to	Algal fatty acids	to	Cosmetics
6	Palm oil	to	Palmitic acid	to	Cosmetics
7	Woody (primary and secondary)	to	Sawn wooden products	to	Building material
8		to	Fibreboard	to	MDF/Particle board
9		to	Wood packaging materials	to	Packaging materials
10		to	Tall oil	to	Chemicals
11		to	Rayon	to	Yarn
12	Agricultural residues (e.g., straw)	to	Insulation materials	to	Building materials
13	Rubber tree	to	Natural rubber	to	Medical devices
14	Wood secondary/waste	to	Pulp	to	Paper
15	Cotton	to	Cotton fabrics	to	Textile (e.g. T Shirt)
16	Jute/Flax	to	Fabrics	to	Technical textiles

2 INTRODUCTION

The project HARMONITOR (harmonisation and monitoring platform for certification schemes and labels to advance the sustainability of bio-based systems) aims to help in the improvement of the effectiveness of certification schemes and labels (CSLs) in different sectors of the EU Bioeconomy and therewith strengthen their use as a co-regulation instrument.

To achieve these objectives, HARMONITOR develops a monitoring system, in close cooperation with its sister projects sustcert4biobased and STAR4BBS. Furthermore, dedicated assessment activities will analyse the current status of sustainability certification in the EU bioeconomy and finally, HARMONITOR develops a platform for the cooperation and continuous improvement of CSLs.

The basis for these activities is a joint definition of starting points for the project, which include the development of an inventory of CSLs and bio-based value chains. These starting points can be used by all HARMONITOR tasks and partners for respective analysis and assessment steps in HARMONITOR WPs 3, 4, 5 and 6.

2.1 Scope and structure of this Deliverable

The specific objective of HARMONITOR Task 2.1 was the selection of CSLs as well as a number of bio-based value chains to establish a project inventory and basis for further work in HARMONITOR.

The selection shall thereby focus on CSLs that are relevant to the EU bioeconomy and which address both, innovative as well as established value chains, industrial sectors, feedstocks and products.

The following chapter 3 provides an overview on the general approach, taken to develop the inventory of CSLs and bio-based value chains for HARMONITOR WP2. Finally, chapter 4 presents the selection and briefly describes the CSLs as well as the bio-based value chains.

3 METHODOLOGY

This section describes the methodological approach for the identification and selection of certification schemes and labels as well as bio-based value chains for the further analysis in the different Work packages of the HARMONITOR project. Furthermore, the selection will be an input to Task 2.4 for the development of the platform for continuous improvement of CSLs.

The selection of both elements was organised in subsequent steps, starting with the development of a broader inventory of existing CSLs which were then matched with the value chains for HARMONITOR, selected under Deliverable 3.1. The two following subchapters summarise the different steps, which led to a longlist of CSLs and value chains which are presented in chapter 4.

3.1 Developing a CSL inventory for the HARMONITOR project

3.1.1 Definitions

Our review and selection of CSLs included a wide range of existing elements, which we summarise under the following terms:

Labels: Labels are used for the communication of certain product characteristics to consumer and customers. A certification process can be a precondition for the labeling of a product. However, there are also products self-labeled by the producer. Further types are labels of testing organisations, testing for example products from different manufacturers in order to label the ones with the best results.

Sustainability initiatives: Sustainability initiatives are herein referred to as initiatives compiling sets of sustainability criteria and indicators for a particular purpose, e.g., the analysis of the sustainability of specific biogenic feedstocks. They might be organised as a heterogeneous group of people or institutions with different background and with different interests. The goal of this type of initiative is to reach a consensus between the different parties. In the resulting set of criteria, the different interests are covered equally. This type of initiative is often called “multi-stakeholder initiative” or “roundtable”.

The second type of initiative included in this context shall be an initiative consisting of a group of people belonging to one party. They can have a background in science and academics, governmental agencies, enterprises or NGOs. The one object, quality sustainability initiatives have in common is the outcome/product, which is a set of criteria for further unspecified or specified use. The outcome can be used internally, e.g., for the sustainability strategy of an organisation

or may be picked up by other organisations in case the outcome is open source.

Certification schemes:

Certification schemes are based on a normative framework, e.g. a standard or a set of criteria and indicators. The output of sustainability initiatives may be used as the basis for a certification scheme. Sustainability initiatives therefore sometimes turn into a certification scheme holder over time as it happened with different roundtables. The most important characteristic of a certification scheme, as it is understood in this context, is that it includes a third-party verification of the sustainability requirements, stipulated in the system documents. Also, the whole certification process is usually based on accreditation standards (e.g. ISO 19011 or ISO 17065), in which the separation of evaluation and certification is an important feature. As a result of the certification process, a label on a product shows compliance with the requirements set by the respective certification scheme. Certificate holders mostly participate voluntarily in a certification scheme. However, there are industries, in which holding certificate facilitates market access, which is, for instance, the case with liquid biofuels sold in European Union markets.

3.1.2 Process for the selection of CSLs

The process of selecting CSLs for HARMONITOR was organised in a threefold approach (compare Figure 1 1).

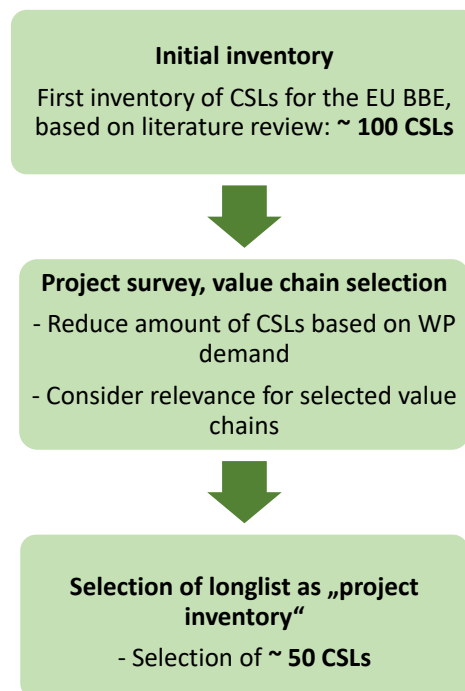


Figure 1 Process steps for the selection of the CSLs inventory in HARMONITOR. own figure.

As first step towards the development of CSL inventory, which can serve the specific needs of the different tasks within the HARMONITOR project, an **initial inventory** on the certification landscape in the EU bio-based economy was generated.

This step was based on a comprehensive review, involving literature desktop research, as well as available databases such as the ITC Standards Map (International Trade Centre 2021) and Label Online (Label online 2023). This step revealed a list of ~ 100 certification schemes as a first, preliminary result.

To understand and assess the potential relevance of the identified schemes for the work in HARMONITOR, further desktop research was conducted on the sustainability requirements and sustainability topics included in these CSLs (compare Annex I). This step allowed to introduce filters for further selection and differentiation according to the specific needs of the different HARMONITOR WPs in a subsequent working step.

Secondly, the identified CSLs have been assessed against the specific expectations and the demand formulated by HARMONITOR partners, involved specifically in WPs 3, 4, 5 and 6. For this purpose, a comprehensive, **project internal questionnaire** was developed, including the following questions:

- Which elements of the CSLs are important for your analysis/work (e.g., the sustainability requirements, the verification procedures, risk assessment, etc.)?
- How many CSLs are you planning to analyse in your task or work package?
- To define the parameters for the selection of CSLs. Please indicate which aspects are important for you and the work in your task regarding the CSL selection (e.g., geographical focus, feedstock focus, specific market sectors in the EU bio-based economy, business-to-business focus or business-to-focus, the “ambition” of the CSL regarding the comprehensiveness of the sustainability requirements)
- Do you already have recommendations or made a pre-selection of CSLs? If yes, which CSLs should be selected from your perspective (and why)?

The results of the survey are documented in Annex II of this report.

Another important aspect is the relevance and applicability of the CSLs for the value chains selected under WP2. HARMONITOR will use value chains for relevant and/or innovative bio-based products to assess specific parameters (e.g., costs) regarding the effectiveness of the CSLs within certain product environments and value chains. For this purpose, the developed inventory of CSLs was matched with the specific value chain elements (compare section 0).

As a result of this activity, an internal longlist of ~ 50 CSLs, which will be used as a starting point for the subsequent activities in other work packages of HARMONITOR has been produced.

The developed longlist is further described in section 4.1.

3.2 Selecting value chains as starting points for HARMONITOR

In addition to the CSL inventory, Task 2.1 selects a minimum of 5 to 10 value chains (according to the description of work in the Grand Agreement of the project) as starting points for the subsequent HARMONITOR WPs.

The identification of relevant value chains and products, which shall support the assessment and monitoring of CSLs was part of a comprehensive process under WP 3. As a result, D3.1 presents a preselection of 35 bio-based value chains, including a description of feedstock categories (e.g., starch or sugar), intermediates (e.g., sawn wooden products), potential products (e.g., bioplastics) to be produced in downstream processes as well as a characterisation of these chains regarding their markets, levels of innovation, etc.

Figure 2 presents the pre-selection produced in D3.1.

#	Intermediary chemical	Sector	biomass type in	Products out	Intermediary included in statistics?	Feedstock: EU, import, or both?	Existing bio-based market?	Innovative bio-based product?	Feedstock: waste/residue?
1	Acetic acid	Chemicals	Sugar/starch	PTA, VAM, acetic anhydride, acetate esters	n	both	y	y	n
2	Ethylene glycol	Chemicals	Sugar/starch	PET	n	import	y	y	n
3	Ethylene	Chemicals	Sugar/starch	Polyethylene (PE), HDPE	n	import	y	y	n
4	Butanediol (1,4)	Chemicals	Sugar/starch	Solvent, production of polyurethanes	n	both	y	y	n
5	Lactic acid	Chemicals	Sugar/starch (cane sugar)	PLA	y	import	y	y	n
6	Lactic acid	Chemicals	Sugar/starch (cane sugar)	Salts and esters	y	both	y	n	n
7	Starch polymers	Chemicals	Starch (potatoes), corn	Plastic utensils	y	both	y	n	n
8	Palmitic acid with its salts and esters	Chemicals	Palm oil	Cosmetics, surfactants	y	import	y	n	n
9	Propylene glycol	Chemicals	Oil crop (glycerol)	Propylene glycol	n	both	y	y	both
10	Poly(urethane) PUR	Chemicals	Vegetable oil - soybeans	PUR	n	import	y	y	n
11	Epichlorohydrin	Chemicals	Vegetable oil, glycerol	Solvent in resin, paints	n	both	y	y	both
12	Rayon	Chemicals	Wood	Tarn	y	EU	y	y	n
13	PHA	Chemicals	wastewater	Plastics	n	EU	n	y	y
14	(Poly)propylene	Chemicals	UCO	Plastics	n	both	n	y	y
15	Algal fatty acids	Chemicals	Algae	Cosmetic ingredient	n	both	n	y	n
16	Sawn wooden products	Wood	Wood	Several	y	both	y	n	n
17	Fibreboard (particle, MDF, etc)	Wood	Wood, waste wood	MDF, Particle board	y	both	y	n	y
18	Oriented strand board	Wood	Wood	OSB	y	both	y	n	n
19	Wooden packaging	Wood	Wood	Cases, boxes, drums	y	both	y	n	n
20	Wooden pallets	Wood	Wood	Pallets	y	both	y	n	n
21	Wood wool, wood flour	Wood	Wood	Panels, fibre cement, insulation, filler	y	both	y	n	n
22	Lignin based products	Wood	Wood	Binders and aromatic chemicals, asphalt/bitumen	n	both	n	y	y
23	Tall oil	Wood	Wood	Chemicals	n	both	y	y	y
24	Pulp	Paper	Wood, wastepaper	Graphic paper	y	both	y	n	y
25	Pulp	Paper	Wood, wastepaper	Paper board	y	both	y	n	y
26	Pulp	Paper	Wood, wastepaper	Toilet paper	y	both	y	n	y
27	Cotton fabrics	Textile	Cotton	Woven fabrics, table and bed linen, sacks and bags	y	import	y	n	n
28	Wool fabrics	Textile	Wool	Textile	y	both	y	n	n
29	Jute	Textile	Jute	Textile	y	import	y	n	n
30	Flax	Textile	Flax	Textile, table linen	y	EU	y	n	n
31	Hemp	Textile	Hemp	Textile, insulation materials	n	EU	y	n	n
32	Straw	Building	Straw	building materials	n	EU	y	y	y
33	Biowaste	Waste	Biowaste	Compost	y	EU	y	n	y
34	Leather	Textile	Animal skin	Clothing, textiles	y	import	y	n	n
35	Natural rubber	Chemicals	Natural rubber	Tyres, various products	y	import	y	n	n

Figure 2 Pre-selection of value chains from D3.1 (HARMONITOR D3.1)

Starting from this pre-selection, two steps have been taken to further define and select potential value chains for HARMONITOR. Since, again, this activity shall serve the demand and the objectives of WPs 3 (describe the market relevance of specific value chains and their certifications in the EU market), 4 (develop a benchmarking framework), 5 (the development of the system to monitor the effectiveness of certification schemes) and 6 (assess the costs of certification for different value chains), we used a questionnaire to understand additional underlying parameters for the selection.

In order to support this step, we clustered the relevant feedstock groups with appropriate, intermediate and final products to be produced from these feedstocks (see figure 3, resulting in the two main clusters shown in Figure 4).

#	Intermediary chemical	Sector	biomass type in	Products out	Intermediary included in statistics?	Feedstock: EU, import, or both?	Existing bio-based market?	Innovative bio-based product?	Feedstock: waste/residue?
1	Acetic acid	Chemicals	Sugar/starch	PTA, VAM, acetic anhydride, acetate esters	n	both	y	y	n
2	Ethylene glycol	Chemicals	Sugar/starch	PET	n	import	y	y	n
3	Ethylene	Chemicals	Sugar/starch	Polyethylene (PE), HDPE	n	import	y	y	n
4	Butanediol (1,4)	Chemicals	Sugar/starch	Solvent, production of polyurethanes	n	both	y	y	n
5	Lactic acid	Chemicals	Sugar/starch (cane sugar)	PLA	y	import	y	y	n
6	Lactic acid	Chemicals	Sugar/starch (cane sugar)	Salts and esters	y	both	y	n	n
7	Starch polymers	Chemicals	Starch (potatoes), corn	Plastic utensils	y	both	y	n	n
8	Palmitic acid with its salts and esters	Chemicals	Palm oil	Cosmetics, surfactants	y	import	y	n	n
9	Propylene glycol	Chemicals	Oil crop (glycerol)	Propylene glycol	n	both	y	y	both
10	Poly(urethane) PUR	Chemicals	Vegetable oil - soybeans	PUR	n	import	y	y	n
11	Epichlorohydrin	Chemicals	Vegetable oil, glycerol	Solvent in resin, paints	n	both	y	y	both
12	Rayon	Chemicals	Wood	Tarn	y	EU	y	y	n
13	PHA	Chemicals	wastewater	Plastics	n	EU	n	y	y
14	(Poly)propylene	Chemicals	UCO	Plastics	n	both	n	y	y
15	Algal fatty acids	Chemicals	Algae	Cosmetic ingredient	n	both	n	y	n
16	Sawn wooden products	Wood	Wood	Several	y	both	y	n	n
17	Fibreboard (particle, MDF, etc)	Wood	Wood, waste wood	MDF, Particle board	y	both	y	n	y
18	Oriented strand board	Wood	Wood	OSB	y	both	y	n	n
19	Wooden packaging	Wood	Wood	Cases, boxes, drums	y	both	y	n	n
20	Wooden pallets	Wood	Wood	Pallets	y	both	y	n	n
21	Wood wool, wood flour	Wood	Wood	Panels, fibre cement, insulation, filler	y	both	y	n	n
22	Lignin based products	Wood	Wood	Binders and aromatic chemicals, asphalt/bitumen	n	both	n	y	y
23	Tall oil	Wood	Wood	Chemicals	n	both	y	y	y
24	Pulp	Paper	Wood, wastepaper	Graphic paper	y	both	y	n	y
25	Pulp	Paper	Wood, wastepaper	Paper board	y	both	y	n	y
26	Pulp	Paper	Wood, wastepaper	Toilet paper	y	both	y	n	y
27	Cotton fabrics	Textile	Cotton	Woven fabrics, table and bed linen, sacks and bags	y	import	y	n	n
28	Wool fabrics	Textile	Wool	Textile	y	both	y	n	n
29	Jute	Textile	Jute	Textile	y	import	y	n	n
30	Flax	Textile	Flax	Textile, table linen	y	EU	y	n	n
31	Hemp	Textile	Hemp	Textile, insulation materials	n	EU	y	n	n
32	Straw	Building	Straw	building materials	n	EU	y	y	y
33	Biowaste	Waste	Biowaste	Compost	y	EU	y	n	y
34	Leather	Textile	Animal skin	Clothing, textiles	y	import	y	n	n
35	Natural rubber	Chemicals	Natural rubber	Tyres, various products	y	import	y	n	n

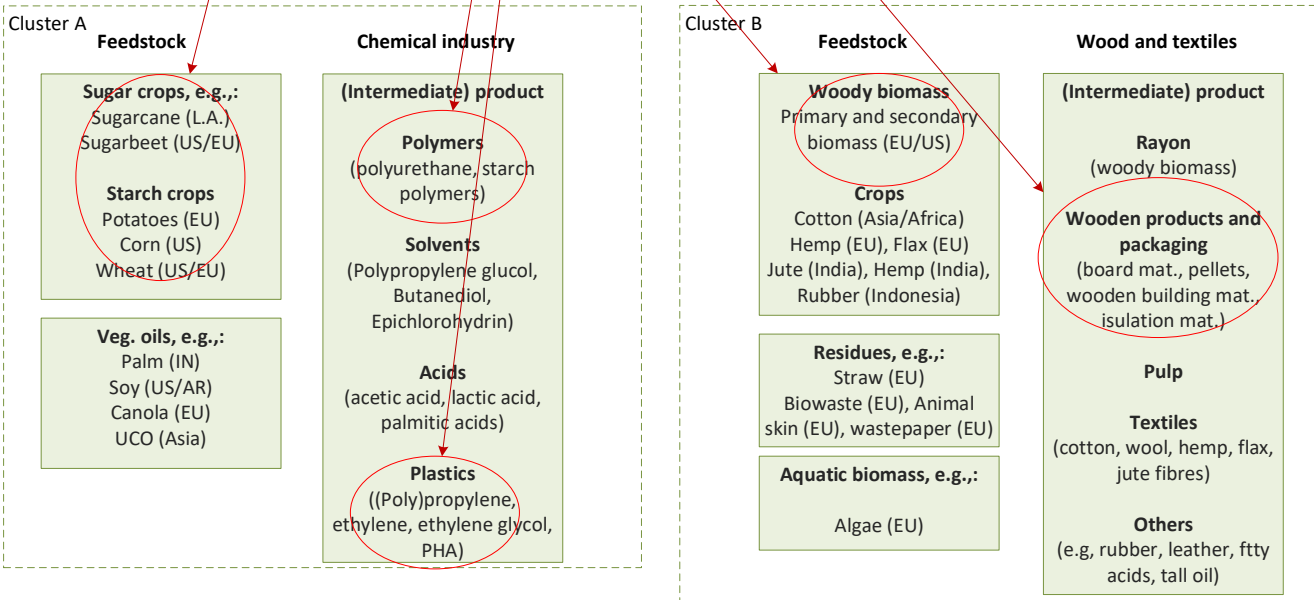


Figure 3 Clustering the value chain elements from HARMONITOR Deliverable 3.1. own figure.

The connection of the different value chain elements identified in D3.1 to clusters of feedstock categories and corresponding products results in the elements shown in Figure 4.

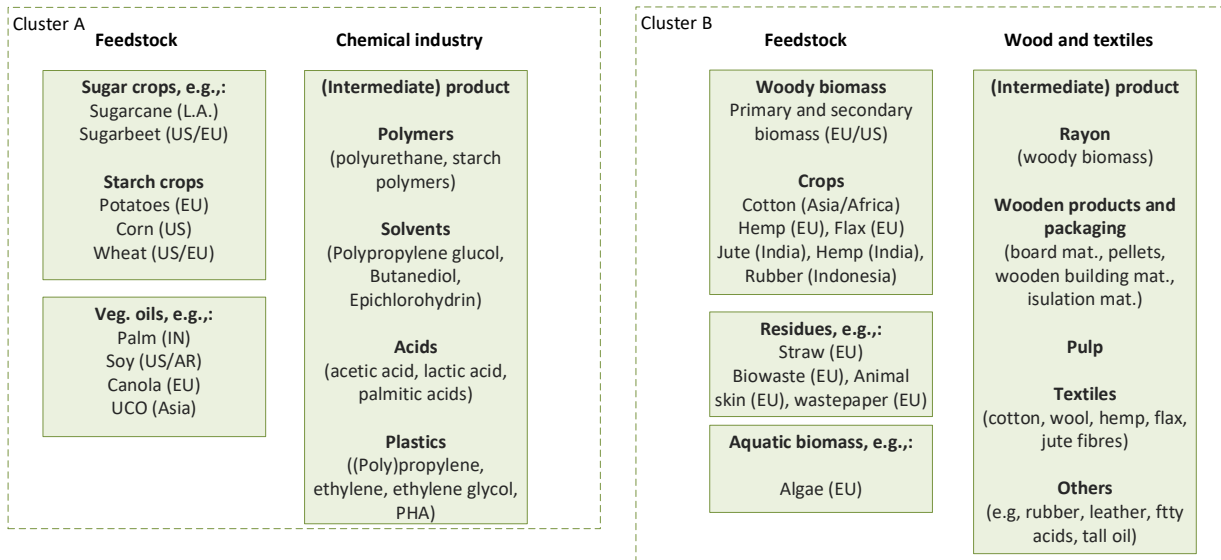


Figure 4 Clusters of value chain elements to be considered in the selection. own figure.

Finally, an internal questionnaire was used to identify preferences for specific value chains from the project partners, covering institutions from academia, certification schemes, certification bodies, regulatory and market strategy consultancy, all with several decades of experience in sustainability of bioeconomy.

The survey included the following questions:

- Please explain briefly, how and for which purposes you intend to use the selected value chains in your WP?
- Are there specific requirements for the definition of the value chains that are important from the perspective of your WP?
- Do you have any preferences regarding the types of feedstock and the regions of origin for the selection of the value chains?
- Do you have any preferences regarding the products and/or the industry sectors to be included in the selection of the value chains?
- If you look at the elements of value chains included in figure 3: Are there elements that should be included in the value chains selected? In addition: Is there anything that is not in the figures that should be included?
- Do you have any comments or suggestions for the process of the value chain selection? Is there anything we missed?

Furthermore, the following additional selection criteria have been defined:

- The value chain should include an intermediate product, which could be used for further downstream processing (following the scope of HARMONITOR to consider B2B certifications)
- Availability of CSLs covering the value chain elements is important
- The value chains should reflect both established and innovative value chains.

Based on these criteria and the answers to the survey, an additional task to match the elements of the value chain clusters defined in figure 3 with the schemes selected under chapter 0. has been conducted.

The result of this exercise helps to understand the potential coverage of the identified value chain elements by the available CSLs (compare Figure 5).

This first analysis shows, that in theory, each of the value chain elements included in our selection can be covered by an existing CSL. However, a strong focus on the part of the feedstock production can be observed. While the detailed analysis of CSLs and their requirements is part of the benchmarking task in WP4, a potential explanation for this is that a major share of the potential sustainability risks associated with the production of bio-based materials is often attributed to the process of feedstock production (Scarlat et al. 2015). Thus, several of the selected CSLs have been developed, starting with a feedstock focus included in their sustainability requirements.

Value chain element	Alliance for Water Stewardship (AWS) Aquaculture Stewardship Council (ASC) Better Biomass Better Cotton Bioplastic Feedstock Alliance (BFA) Bonsucro BRCGS Ethical Trade and Responsible Sourcing BREEM Carbon Trust Product Footprint Certification Cradle to Cradle Certified EU Ecolabel – Paper EU Ecolabel – Textiles EU organic farming logo Fairtrade International Fairtrade International Textile Standard Forest Stewardship Council (FSC) Global.G.A.P. Global Organic Textile Standard (GOTS) Global Reporting Initiative (GRI) Global Seafood Alliance (GSA) Gold Standard Green Gold Label (GGL) ISCC EU ISCC PLUS Marine Stewardship Council (MSC) Nature Care Products (NCP) Standard Naturtextil IVN certified BEST Ok biobased Pacific Organic Standard PEFC International Rainforest Alliance Recognised REDcert EU REDcert? Round Table on Responsible Soy Association (RTS) Roundtable on Sustainable Biomaterials (RSB) Roundtable on Sustainable Palm Oil (RSPO) SAI Platform – Farm Sustainability Assessment (FSA) SGE 21 Sustainable Agriculture Network (SAN) Sustainable Biomass Program (SBP) Sustainable Forestry Initiative (SFI) Textile Exchange Together for Sustainability (TFS) Verified Carbon Standard (VCS)
Feedstock-Region	
Sugarcane - South America	
Maize - North America	
Maize - Europe	
Sugarbeet - EU	
Sugarbeet - US	
Wheat - EU	
Soy - South America	
Soy - US	
Palm oil	
Canola - EU	
UCO - Asia	
Wood - US	
Wood - EU	
Cotton - Asia	
Cotton - Africa	
Hemp - EU	
Hemp - India	
Flax - EU	
Jute - India	
Natural Rubber - Indonesia	
Algae	
Processing/Product	
Ethylene - Glycol	
Biopolymers - e.g., Polyurethane, starch polymers	
Solvents - e.g., Polypropylene glycol, Butanediol,	
Acids - e.g., acetic acid, lactic acid, palmitic acids)	
Bioplastics - e.g., (Poly)propylene, Ethylene, Ethylene glycol, PHA)	
Textiles	
Cosmetics	
Wood products	
Rayon - e.g., from wood biomass	
Paper	
Pulp	
Medical devices	
Building materials	
Packaging materials	
MDF/Particle board others, rubber, leather	
End-of-Life (EoL)	
Recycling of textiles	
Energy from wood waste..	
Agricultural residues (e.g., straw)	

Figure 5 Coverage of potential value chain elements with selected CSLs. Green fields indicate that the value chain element is covered by the CSL, orange fields indicate that the value chain element is not specifically covered. For more information on uncertainties in data collection, see ANNEX III. own figure.

Based on the different steps outlined above, a longlist of bio-based value chains for further analysis and work in HARMONITOR has been produced. The selection is described in the next chapter.






4 RESULTS - SELECTED CSL AND VALUE CHAINS

This chapter provides an overview on the selected inventory of CSLs and the bio-based value chains for the HARMONITOR project.

4.1 Selected Certification Schemes and Labels

Following the general approach defined under section 3.1, the following table presents the inventory of the selected CSLs.

Table 3 List of selected CSLs for further analysis in HARMONITOR. own table.

CSL	Logo	Short description	Reference
Alliance for Water Stewardship (AWS)		Certification of responsible water use and management practices	(AWS 2022)
Aquaculture Stewardship Council (ASC)		Certification of responsible aquaculture, including environmental, social and economic criteria. Applicable to a wide range of farmed fish and seafood products.	(ASC 2023)
Better Biomass		Focus on the sustainable production, processing, and trade of solid, liquid, and gaseous biomass, including wood pellets, biogas and more. The scope of Better Biomass covers the entire biomass supply chain, from the production of biomass to its processing and end use and includes criteria for responsible land use, biodiversity conservation, and social and economic sustainability. Better Biomass also sets requirements for the reduction of greenhouse gas emissions and the responsible use of water and chemicals.	(Better Biomass 2023)
Better Cotton		Certification of sustainable cotton production, including environmental, social and economic criteria. Applicable to cotton products and supply chains, including raw cotton, yarns, fabrics, and finished products.	(Better Cotton 2023)
Bioplastic Feedstock Alliance (BFA)		Sustainability certification of bio-based feedstock and their supply chains	(BFA 2023)












Bonsucro		Bonsucro covers the entire sugarcane supply chain from the production of sugarcane to its processing and trade, including social sustainability, environmental sustainability, and economic sustainability.	(Bonsucro 2023)
BRCGS Ethical Trade and Responsible Sourcing		Certification of ethical and responsible sourcing, including social, ethical and environmental criteria. Applicable to a wide range of products and supply chains, including food and beverage, textile and apparel, and consumer goods.	(BRCGS 2023)
BREEAM		BREEAM is a certification scheme for green building design, construction and operation, including issues such as energy efficiency, water conservation, and materials selection.	(BREEAM 2023)
Carbon Trust Product Footprint Certification		Provides a framework for companies to measure, manage, and reduce the carbon footprint of their products across the entire life cycle, from raw material extraction to disposal. It provides a certification that demonstrates a company's commitment to reducing carbon emissions and addressing climate change.	(The Carbon Trust 2023)
Cradle to Cradle Certified		Cradle to Cradle Certified is a certification scheme that focuses on sustainable product design and manufacturing, including material health, recyclability, and use of renewable energy.	(Cradle to Cradle Products Innovation Institute 2023)
EU Ecolabel - Paper		Focusses on paper and board products, aiming to ensure that they are made from sustainably sourced wood fibres, use less water and energy during production, and have lower emissions and waste. It also considers social responsibility and end-of-life management	(European Commission 2023b)
EU Ecolabel - Textiles		Aims to ensure stringent environmental and human health criteria throughout the life cycle of textiles, including the use of sustainable materials and chemicals, water and energy efficiency, social responsibility, and end-of-life management. It covers a wide range of products, including clothing, home textiles, and accessories.	(European Commission 2023a)
EU organic farming logo		Certification of organic farming, including environmental and social criteria. Applicable to a wide range of agricultural products, including crops, livestock, dairy, honey, mushrooms, and processed food products.	(European Commission 2023c)



Fairtrade International		Certification of fair trade, including social, economic and environmental criteria. Applicable to a wide range of products, including coffee, tea, cocoa, bananas, sugar, honey, cotton, flowers, gold and other non-food products.	(Fairtrade International 2023a)
Fairtrade International Textile Standard		Certification of fair trade, including social, economic and environmental criteria. Applicable to textile and apparel products, including cotton, wool, silk and other natural fibres.	(Fairtrade International 2023b)
Forest Stewardship Council (FSC)		Verification of sustainable biomass production and supply chain management. Focus on greenhouse gas emissions, environmental and social criteria. Applicable to solid, liquid and gaseous biofuels, as well as biomass used for heat and power.	(FSC 2023)
GlobalG.A.P.		GlobalG.A.P. is a certification program for sustainable agriculture practices that covers the supply chain, from farm to retail. It includes standards for food safety, environmental sustainability, and social responsibility.	(GlobalG.A.P. 2023)
Global Organic Textile Standard (GOTS)		Certification of organic textile production, including environmental and social criteria. Applicable to textile and apparel products, including fibres, yarns, fabrics, and finished products.	(GOTS 2023)
Global Reporting Initiative (GRI)		Sustainability reporting standards for organizations	(GRI 2023)
Global Seafood Alliance (GSA)		The Global Seafood Alliance (GSA) encompasses a range of certification programs, including the Best Aquaculture Practices (BAP) and the Responsible Fisheries Management (RFM) certification. It sets standards for responsible seafood farming and fishing practices, including environmental sustainability, social responsibility, food safety, and animal welfare.	(GSA 2023)
Gold Standard		Certification of sustainable development and carbon offset projects	(Gold Standard 2023)
Green Gold Label (GGL)		Green Gold Label (GGL) is an international certification programme for sustainable biomass. The scope includes woody, agri-residue and waste wood biomass, as well as bioliquids.	(GGL 2023)



		Green Gold Label primarily focuses on biomass for the production of bio-based chemicals and other products as well as Biomass for electricity and heat production.	
ISCC EU & ISCC PLUS	 	The ISCC EU certification scheme covers the entire supply chain of biomass and biofuels from the production and harvest of biomass to its processing and trade, including land use, greenhouse gas emissions, and social sustainability. The scope of ISCC Plus is very similar to that of ISCC EU, as both certification schemes share a common foundation. However, ISCC Plus includes additional requirements that go beyond the scope of ISCC EU in certain areas.	(ISCC 2023)
Marine Stewardship Council (MSC)		Certification of sustainable fishing, including environmental, social and economic criteria. Applicable to wild-caught fish and seafood products.	(MSC 2023)
Nature Care Products (NCP) Standard		Certification of natural and organic personal care products. The NCP standard particularly includes detergents and cleaning agents, textile and leather care products, pesticides and fertilisers.	(GfaW 2021)
Naturtextil IVN certified BEST		Certification of sustainable textile production, including environmental, social and economic criteria. Applicable to textile and apparel products, including fibres, yarns, fabrics, and finished products.	(IVN 2018)
OK biobased		Certification of bio-based products and their renewable content	(TÜV Austria Holding AG 2023)
Pacific Organic Standard		Certification of organic agricultural products and production practices	(PoetCom 2023)
PEFC International (Programme for the Endorsement of Forest Certification)		Certification of responsible forest management, including environmental, social and economic criteria. Applicable to natural forests and plantations, and to a wide range of forest products, including timber and non-timber forest products.	(PEFC 2023)
Rainforest Alliance		Certification of sustainable agriculture, forestry and tourism, including environmental, social and economic criteria. Applicable to a wide	(Rainforest Alliances 2023)



		range of products, including coffee, tea, cocoa, bananas, citrus, palm oil, and timber.	
Recognised		Certification of renewable energy projects and their carbon offsetting potential	(Accord Australasia 2022)
REDcert, REDcert ²		A voluntary sustainability certification system focussing on the supply chain of bioenergy and bio-based products based on agricultural biomass, wastes and residues. The REDcert2 certification scheme is an updated version of the REDcert scheme with a broader scope and additional requirements.	(REDcert GmbH 2023)
Round Table on Responsible Soy Association (RTRS)		A global sustainability standard and certification scheme for the responsible production, processing, and trade of soybeans and soy-based products, including animal feed and human food. The scope of RTRS covers the entire soy supply chain from the production of soybeans to their processing and trade, and includes criteria for responsible land use, biodiversity conservation, and social and economic sustainability. RTRS also sets requirements for the reduction of greenhouse gas emissions and the responsible use of water and chemicals.	(RTRS 2023)
Roundtable on Sustainable Biomaterials (RSB)		The Roundtable on Sustainable Biomaterials (RSB) is a global sustainability standard and certification scheme for biomaterials, including biofuels, bioplastics, biochemicals, and other products derived from biomass. The scope of RSB includes the entire value chain of biomaterials, from biomass production to processing, trade, and end use.	(RSB 2023)
Roundtable on Sustainable Palm Oil (RSPO)		RSPO aims to promote the sustainable production, processing and trade of palm oil and palm kernel oil, as well as their derivatives. The scope of RSPO covers the entire palm oil supply chain, from the plantation to the end user, and includes criteria for responsible land use, biodiversity conservation, human rights, and labor standards. RSPO also sets requirements for the reduction of greenhouse gas emissions and the responsible use of water and chemicals.	(RSPO 2023)



SAI Platform - Farm Sustainability Assessment FSA		Verification of sustainable farming practices, including environmental, social and economic criteria. Applicable to a wide range of crops, including cereals, fruits, vegetables, oilseeds, pulses, sugar crops, and livestock.	(SAI 2023)
SGE 21		Sustainability reporting and auditing standards for organizations	(Forética 2023)
Sustainable Agriculture Network (SAN)		SAN is a certification scheme for sustainable agriculture, focusing on issues such as biodiversity conservation, fair labor practices, and community development.	(SAN 2023)
Sustainable Biomass Program (SBP)		Verification of sustainable biomass production and supply chain management. Focus on greenhouse gas emissions, environmental and social criteria. Applicable to solid, liquid and gaseous biofuels, as well as biomass used for heat and power.	(SBP 2019)
Sustainable Forestry Initiative (SFI)		Certification of sustainable forest management, including environmental, social and economic criteria. Applicable to natural forests and plantations, and to a wide range of forest products, including timber and non-timber forest products.	(SFI 2022)
Textile Exchange		Sustainability certification of textile and apparel supply chains	(Textile Exchange 2023)
Together for Sustainability (TfS)		Global industry-led sustainability initiative for supply chain management in the chemical industry. Aims to improve sustainability practices and drive harmonisation and transparency across the supply chain. TfS focuses on supplier assessments and audits to improve sustainability performance and reduce risks associated with the procurement of goods and services.	(TfS 2023)
Verified Carbon Standard (VCS)		Certification of greenhouse gas emission reductions and carbon offset projects	(VCS 2022)

CSLs selected in this inventory cover a wide range of feedstocks, products and economic sectors. Also, they vary significantly with regards to their purpose and the elements and components

included. Furthermore, in some cases, the selection includes general frameworks, which are further specified by certification add-ons or by modules for dedicated products. Examples are the different standards under the Textile Exchange framework (i.e., the Organic Content Standard, the Global Recycled Standard, the Recycled Claim Standard, the Responsible Alpaca Standard, the Responsible Down Standard, Responsible Mohair Standard and the Responsible Wool Standard) or under the Pacific Ocean Standard (i.e., Crops, Livestock, Aquaculture).

The different HARMONITOR WPs will source their selections based on their specific needs and demand from this inventory.

While the selected schemes will be analysed and described, amongst others, in HARMONITOR WP4 (Benchmarking of CSLs), we prepared a first general overview¹ regarding the general coverage of the sustainability topics in the selected CSLs.

This overview is structured into two parts, a simplified first overview, shown in Figure 6 and a mapping with a higher resolution of the coverage of specific sustainability requirements in ANNEX I.

The overview was generated based on the system documents of the CSLs (see respective document links in Table 3) and on information provided by the ITC standards map.

¹ It is important to note, that this overview is not intended to benchmark or judge the selected CSLs. We are aware, that each of the CSLs has been developed for a specific purpose and that the coverage of sustainability topics included might therefore also differ significantly.

As Figure 6 shows, the selected CSLs cover a wide range of sustainability topics. The majority of topics are addressed by over two-thirds of the CSLs. Only the topic manufactured products quality technical and environmental specifications is addressed by about half of the CSLs. In addition, there are few topics that are addressed only by a subset of CSLs. These are livestock and food/feed management systems.

4.2 Selected Value Chains

In addition to the inventory of CSLs, the approach described under section 0 has led to a selection of 16 combinations of value chain elements which can serve as starting points for HARMONITOR.

Following, the pre-selection process described in Deliverable 3.1, the selection covers feedstocks and products from the following industrial sectors:

- agriculture, forestry, aquaculture,
- chemical industry,
- cosmetics,
- building sector,
- packaging,
- paper industry,
- textile industry and
- technical applications.

Table 4 CSL inventory for HARMONITOR. own table.

Nr.	Feedstocks		Pre-products 1		Pre-Products 2	Description
1	Sugarbeet (a. EU; b. US)	to	Butanediol	to	Polymers (e.g., Polyurethane)	Sugar from sugarbeet crops produced in the EU or the US is processed into butanediol, which serves as a precursor for polymers like polyurethane.
2	Sugarbeet (a. EU; b. US), c. Palm, d. UCO	to	Ethylene glycol / Polyproylene	to	Bioplastic (e.g., PET, PLA)	Sugarbeet crops produced in the EU or the US, Palm oil or used cooking oil, originated from Asia are converted into ethylene glycol or



						polypropylene, which are then used in the production of bioplastics such as PET and PLA.
3	a. Corn (US), b. Wheat Grain (EU)	to	Lactic Acid	to	Thermoplastic Polyester (e.g., PLA)	Starch crops like corn from the US or wheat grain produced in the EU are transformed into lactic acid, which is used to produce thermoplastic polyester materials like PLA.
4	Palm oil, Soy, Canola, UCO	to	Polypropylene glycol, Butanediol, Epichlorohydrin	to	Solvents	Different oil crops such as palm oil, soybean oil, canola oil or used cooking oil are processed into polypropylene glycol, butanediol, and epichlorohydrin, which are utilized in the production of solvents.
5	Algae	to	Algal fatty acids	to	Cosmetics	Algal fatty acids are derived from algae (which can be produced in a wide range of locations and production systems) and find applications in the cosmetics industry
6	Palm oil	to	Palmitic acid	to	Cosmetics	Palm oil is converted into palmitic acid, which is used in cosmetic products.
7	Woody (primary and secondary)	to	Sawn wooden products	to	Building material	Wood is transformed into sawn wooden products and building materials like fibreboard, MDF/particle board, and wood packaging materials.
8		to	Fibreboard	to	MDF/Particle board	
9		to	Wood packaging materials	to	Packaging materials	



10		to	Tall oil	to	Chemicals	Woody feedstocks are also used to produce tall oil, which is used in the production of chemicals.
11		to	Rayon	to	Yarn	Woody feedstocks are further processed into rayon, which is then used to produce yarn.
12	Agricultural residues (e.g., straw)	to	Insulation materials	to	Building materials	Agricultural residues such as straw, produced in EU agriculture are transformed into insulation materials, contributing to the production of building materials.
13	Rubber tree	to	Natural rubber	to	Medical devices	Natural rubber is derived from rubber trees and serves as a component in the production of medical devices.
14	Wood secondary/waste	to	Pulp	to	Paper	Wood waste is processed into pulp, which is then utilized in the manufacturing of paper.
15	Cotton	to	Cotton fabrics	to	Textile (e.g. T Shirt)	Cotton fibres are transformed into cotton fabrics, commonly used in textiles such as T-shirts.
16	Jute/Flax	to	Fabrics	to	Technical textiles	Natural fibres such as jute and flax are converted into fabrics, specifically used in the production of technical textiles.

The following figures illustrate the selected value chain elements, chosen on the basis of D3.1 as well as their potential coverage by the CSLs selected for the HARMONITOR inventory. The first assessment of the potential applicability of CSLs to the different value chain elements can serve as a first orientation regarding the potential coverage and focus of the CSLs. The analysis will be continued in greater detail in WP4.

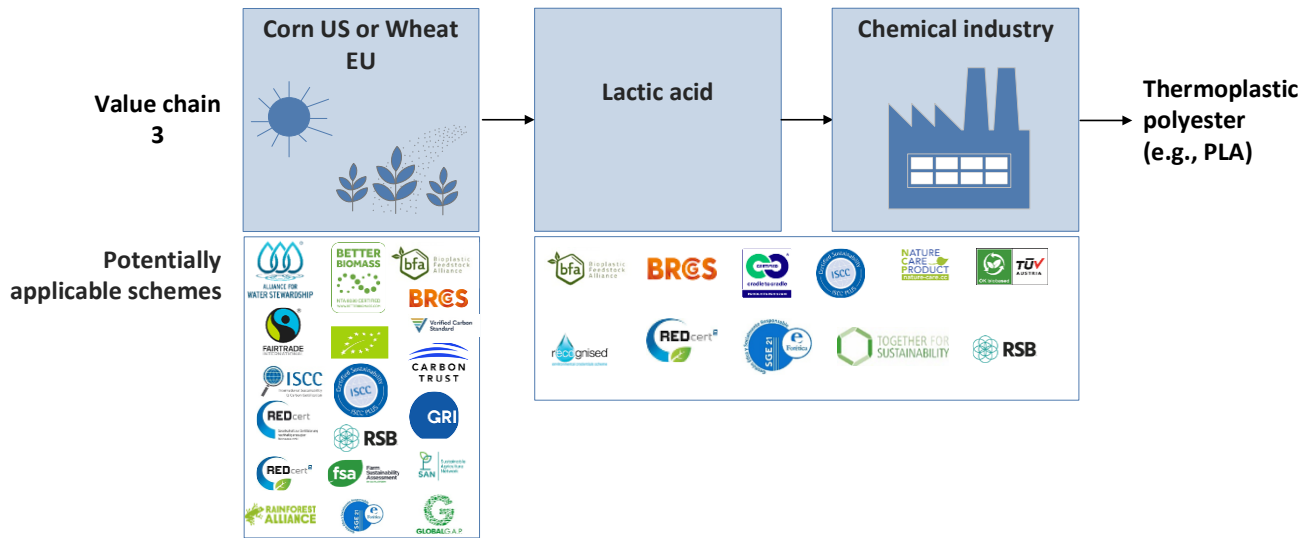


Figure 9 Value chain 3, starch to bioplastic. own figure

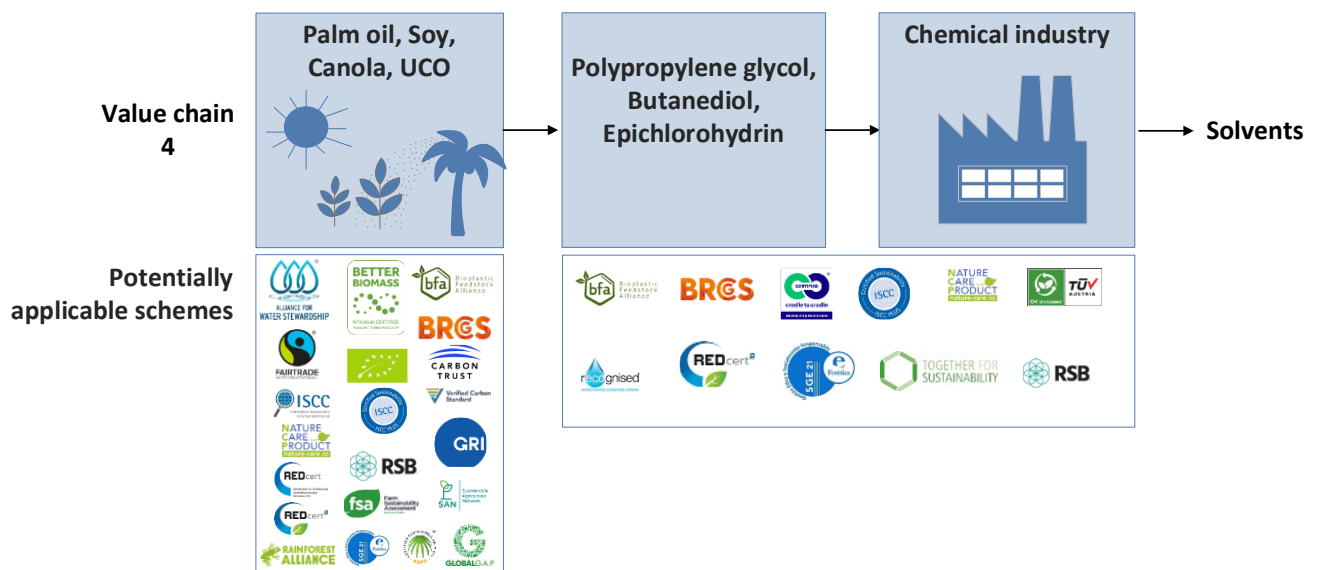


Figure 10 Value chain 4, vegetable oil to solvents. own figure

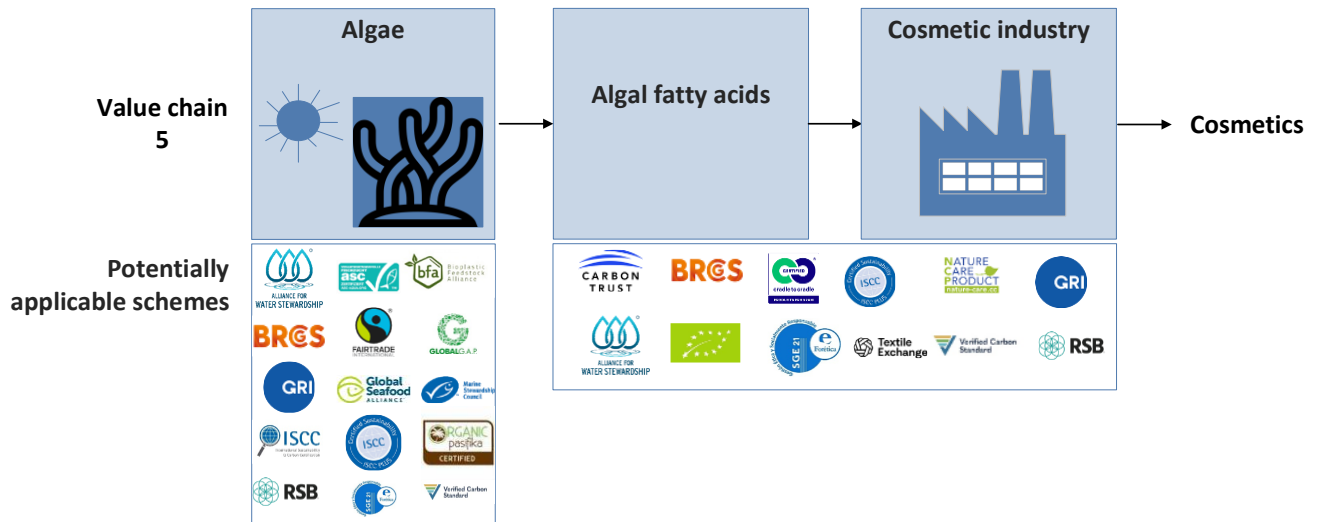


Figure 11 Value chain 5, algae to cosmetics. own figure

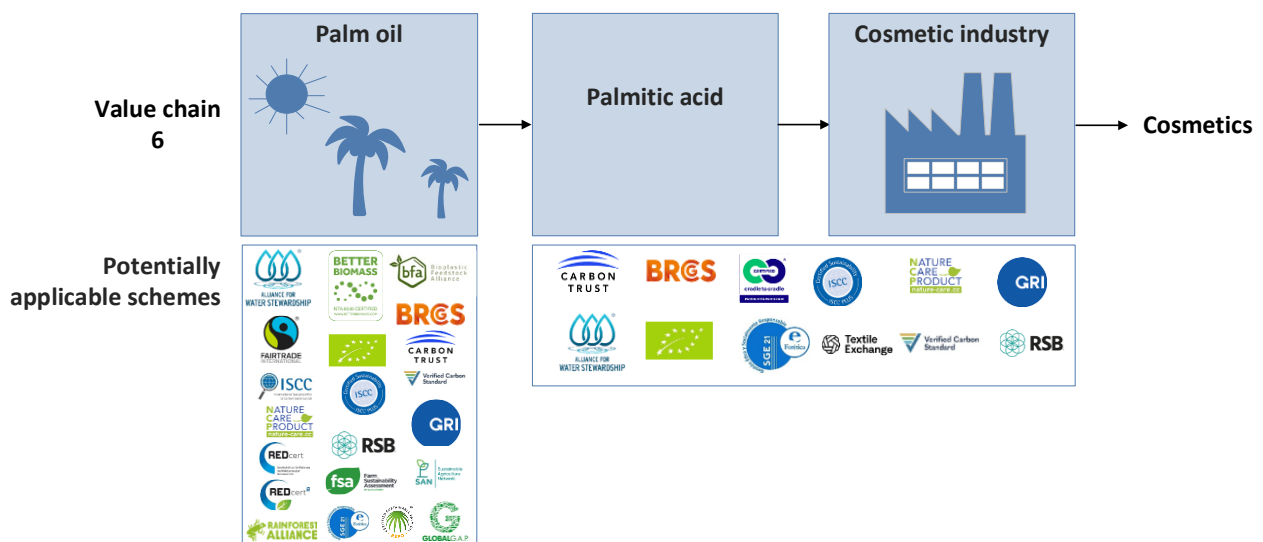


Figure 12 Value chain 6, vegetable oil to cosmetics. own figure

The following figure presents a compact overview for three value chain element combinations, based on woody biomass resources.

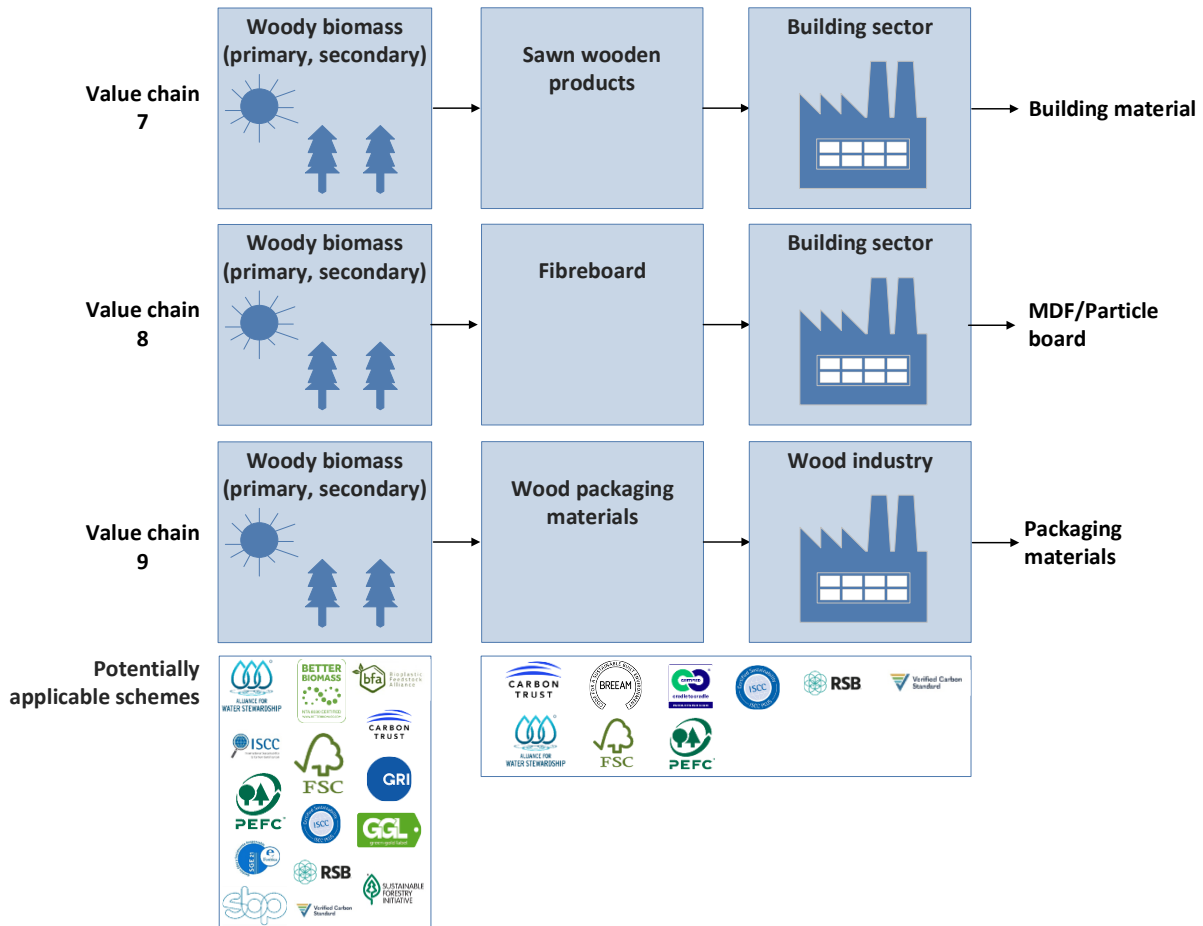


Figure 13 Value chains 7, 8, 9, woody biomass resources to building and packing material. own figure

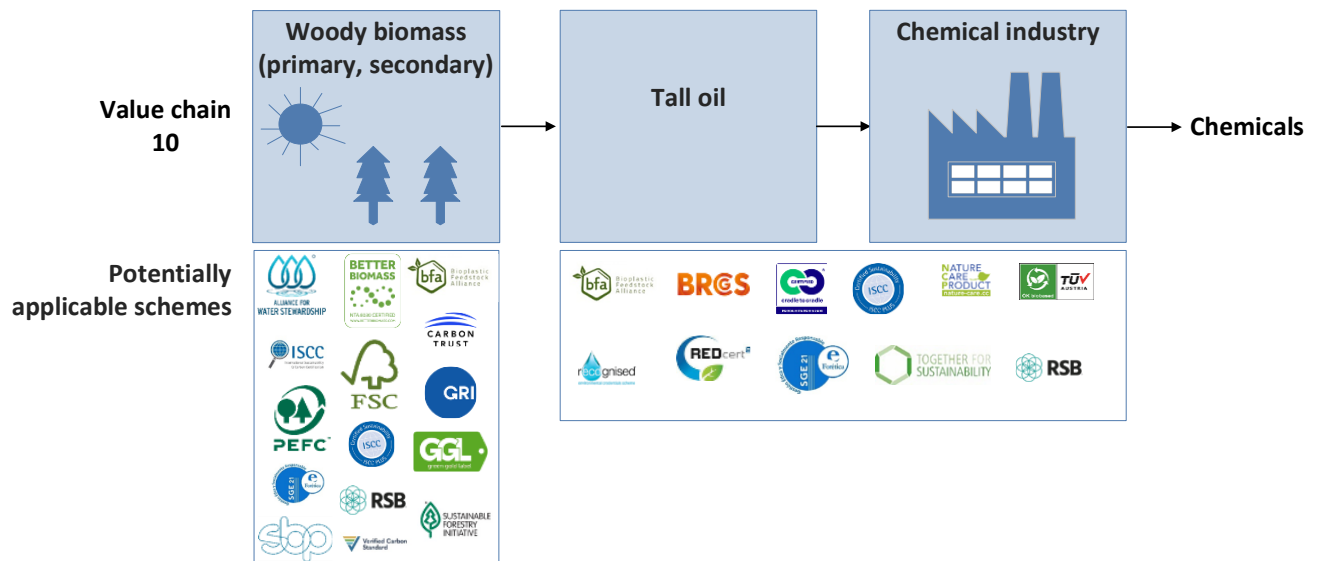


Figure 14 Value chain 10, woody biomass resources to chemicals. own figure

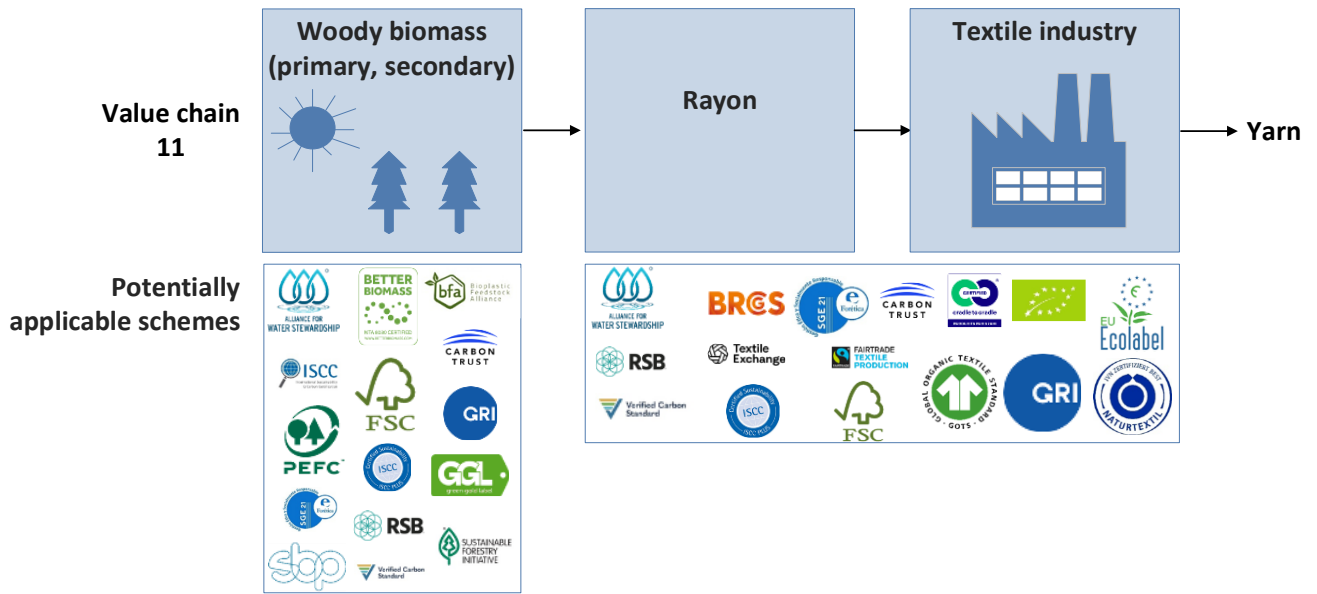


Figure 15 Value chain 11, woody biomass resources to textiles. own figure

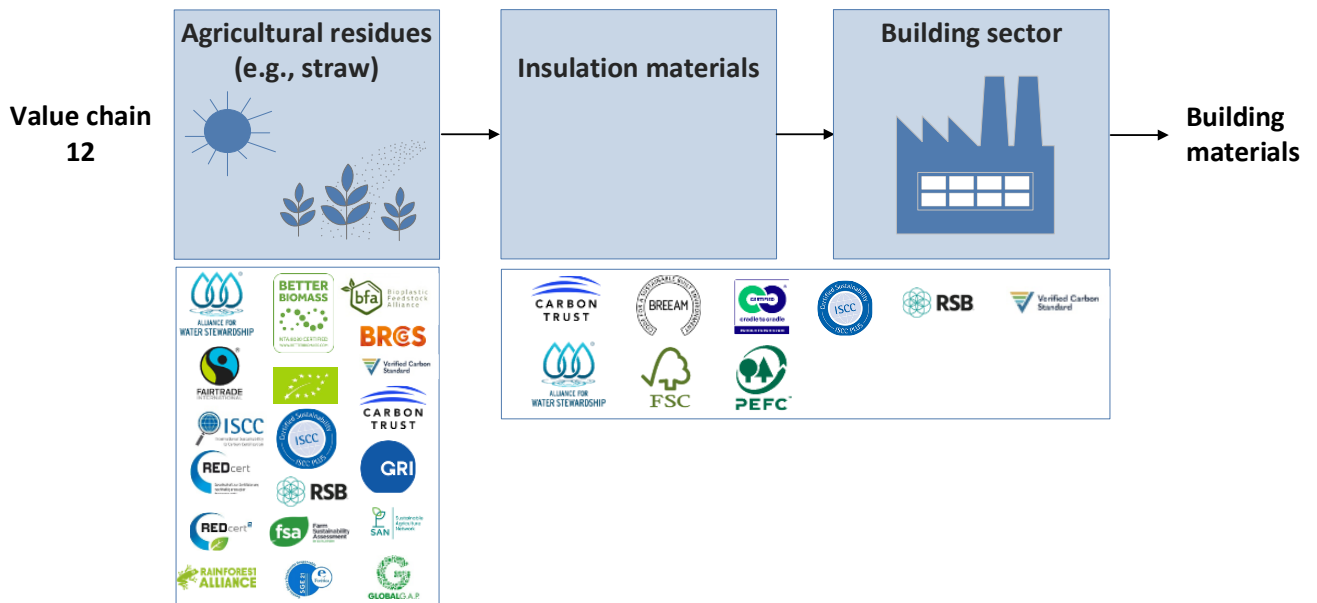


Figure 16 Value chain 12 agricultural residues to building materials. own figure

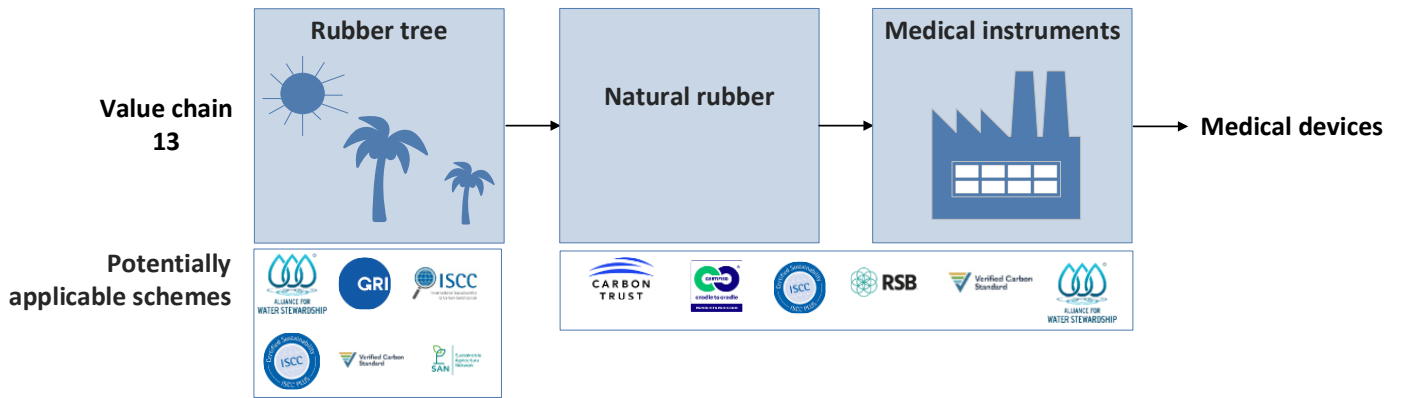


Figure 17 Value chain 13 natural rubber to medical devices. own figure

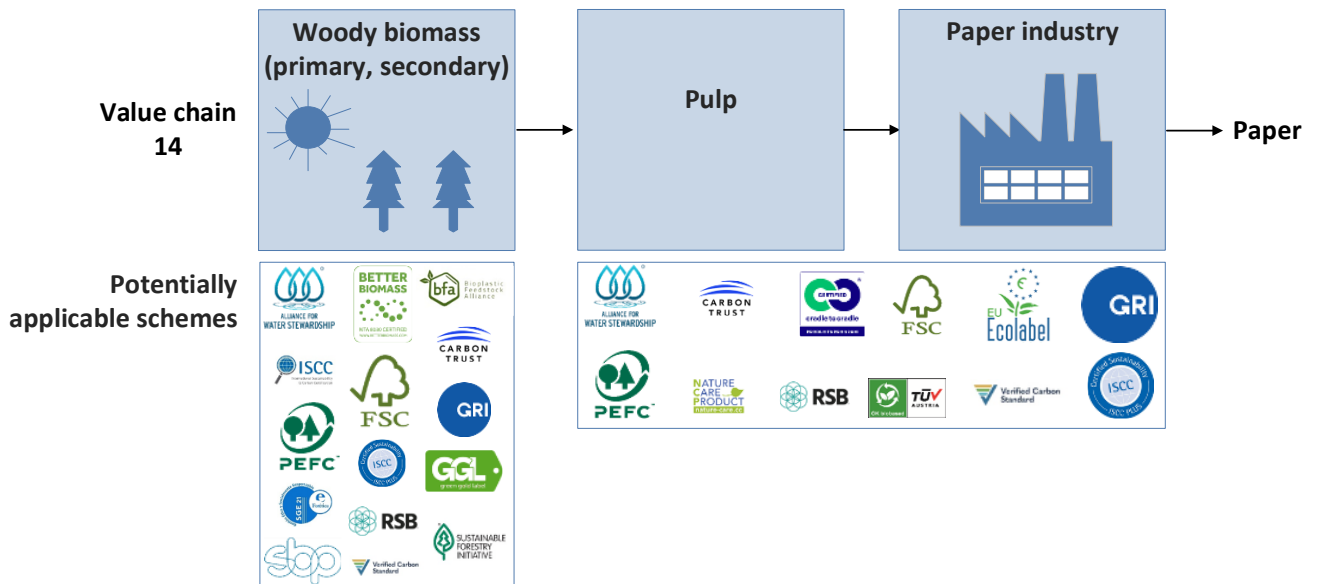


Figure 18 Value chain 14 woody biomass to paper. own figure

The final figure presents an overview of value chains 15 and 16 and the corresponding CSL coverage.

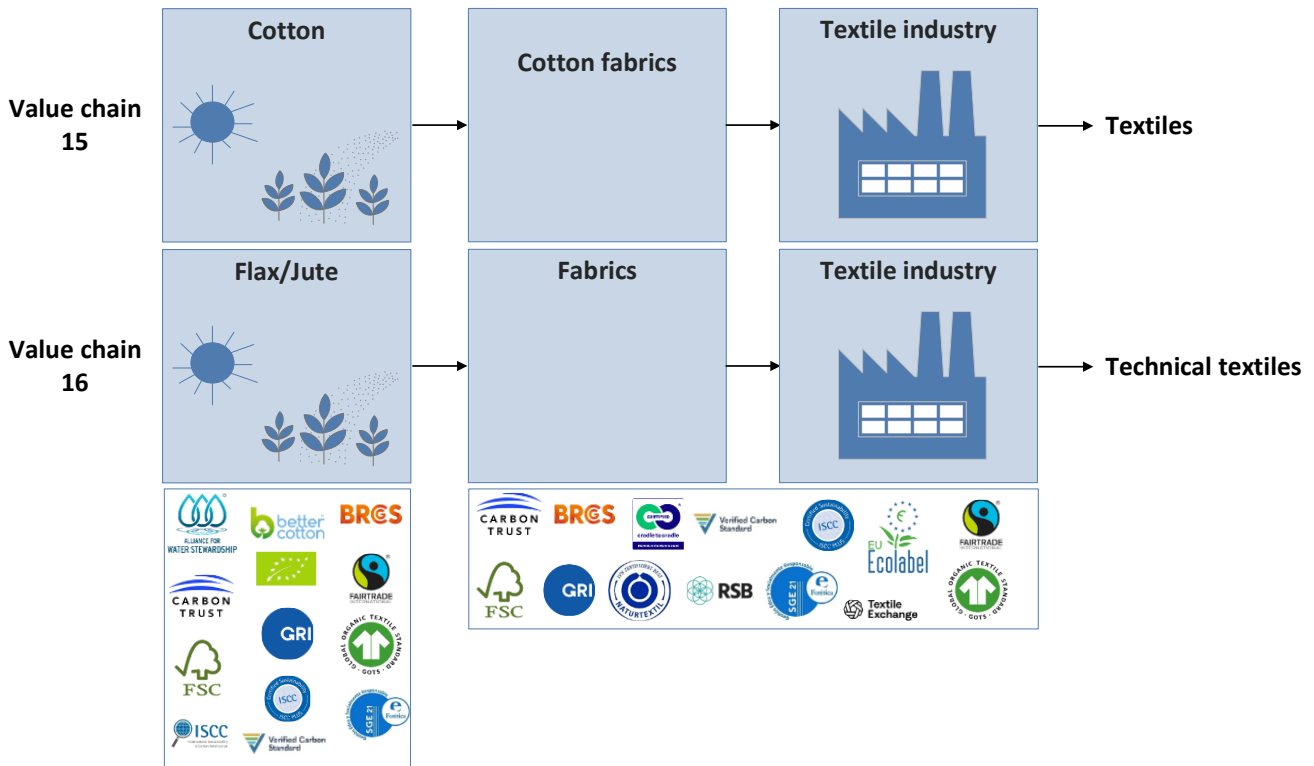


Figure 19 Value chain 14 cotton, flax and jute to textiles. own figure

5 OUTLOOK

The inventory of CSLs and value chain elements presented in the report, aim to facilitate the development of key products within the HARMONITOR project. These products include: i) the HARMONITOR platform for continuous improvement, ii) the monitoring system, iii) the comprehensive assessment tasks in the project.

The HARMONITOR platform for continuous improvement provides a valuable opportunity for stakeholders to exchange knowledge, share best practices, and explore innovative developments within the certification community. The development of this platform is closely tied to the outcome of the HARMONITOR benchmarking activities (WP 4), which draw upon the CSL inventory developed for this Deliverable. Through the benchmarking process, a deeper understanding of the commonalities, differences, and operational aspects of the CSLs will be gained. These insights, to be shared over the coming months until the end of 2023, will greatly support the conceptualization of the platform, which began in May 2023 under WP2. By leveraging the findings from the benchmarking activities, the platform development can effectively incorporate the most relevant information and facilitate collaboration among stakeholders for continuous improvement in the certification community.



The monitoring system within HARMONITOR will undergo further development in collaboration with two sister projects, namely SUSTCERT4BIOBASED and STAR4BBS. The CSL inventory and value chain elements presented in this Deliverable serve as essential inputs for the monitoring framework. The framework's primary objective is to evaluate the effectiveness of CSLs in the European Union's bioeconomy. By leveraging the collective expertise and resources of these projects, HARMONITOR aims to enhance and refine its monitoring system, thereby providing valuable insights into the performance and impact of CSLs within the bioeconomy context.

Finally, HARMONITOR will conduct a comprehensive assessment of the costs (direct and indirect) and benefits associated with certification. This analysis will focus on evaluating the implementation of CSL requirements and verification procedures in specific contexts. To facilitate this assessment, the developed value chain elements can be utilized to gain insights into the economic implications of applying the selected CSLs across diverse feedstocks, industrial sectors, and products. This examination aims to provide a deeper understanding of the economic impacts stemming from the adoption of CSLs, enabling informed decision-making and promoting sustainable practices throughout various stages of the value chain.

REFERENCES

- Accord Australasia (2022): RECOGNISED® Documents. Online verfügbar unter <https://accord.asn.au/sustainability/recognised/recognised-documents/>, zuletzt geprüft am 16.05.2023.
- ASC (2023): Our ASC standards. Aquaculture Stewardship Council (ASC). Online verfügbar unter <https://asc-aqua.org/producers/farm-standards/>, zuletzt geprüft am 12.05.2023.
- AWS (2022): The AWS Standard 2.0. Alliance for Water Stewardship (AWS). Online verfügbar unter <https://a4ws.org/the-aws-standard-2-0/>, zuletzt geprüft am 12.05.2023.
- Better Biomass (2023): Current certification documents. Online verfügbar unter <https://betterbiomass.nl/en/certification-documents/current-certification-documents/>, zuletzt geprüft am 12.05.2023.
- Better Cotton (2023): Resource library. Online verfügbar unter <https://bettercotton.org/document-library/>, zuletzt geprüft am 12.05.2023.
- BFA (2023): Publications. Bioplastic Feedstock Alliance (BFA). Online verfügbar unter <https://bioplasticfeedstockalliance.org/publications>, zuletzt geprüft am 17.05.2023.
- Bonsucro (2023): Production Standard. Online verfügbar unter <https://bonsucro.com/production-standard/>, zuletzt geprüft am 12.05.2023.
- BRCGS (2023): Resources. BRCGS Ethical Trade and Responsible Sourcing. Online verfügbar unter <https://www.brcgs.com/resources/>, zuletzt geprüft am 15.05.2023.
- BREEAM (2023): BREEAM technical standards. BRE. Online verfügbar unter <https://bregroup.com/products/breeam/breeam-technical-standards/>, zuletzt geprüft am 17.05.2023.
- Cradle to Cradle Products Innovation Institute (2023): Resources. Online verfügbar unter <https://c2ccertified.org/resources>, zuletzt geprüft am 17.05.2023.
- European Commission (2023a): EU Ecolabel Clothing and textiles / Textile products. Online verfügbar unter <https://ec.europa.eu/ecat/category/en/14/textile-products>, zuletzt aktualisiert am 09.02.2023, zuletzt geprüft am 15.05.2023.
- European Commission (2023b): EU Ecolabel Paper Products. Online verfügbar unter <https://ec.europa.eu/ecat/category/en/55/tissue-paper-and-tissue-p>, zuletzt aktualisiert am 09.02.2023, zuletzt geprüft am 12.05.2023.
- European Commission (2023c): The organic logo. Online verfügbar unter https://agriculture.ec.europa.eu/farming/organic-farming/organic-logo_en, zuletzt geprüft am 15.05.2023.
- Fairtrade International (2023a): Fairtrade Standards. Online verfügbar unter <https://www.fairtrade.net/standard>, zuletzt geprüft am 15.05.2023.
- Fairtrade International (2023b): Textile Standard. Online verfügbar unter <https://www.fairtrade.net/standard/textile>, zuletzt geprüft am 15.05.2023.

Forética (2023): What is the SGE 21? Online verfügbar unter <https://foretica.org/en/soluciones/sge21/>, zuletzt geprüft am 16.05.2023.

FSC (2023): Document Centre. Forest Stewardship Council (FSC). Online verfügbar unter <https://connect.fsc.org/document-centre>, zuletzt geprüft am 15.05.2023.

GfaW (2021): NCP Nature Care Products Standard. Der Standard für ökologische Non-Food-Produkte. Gesellschaft für angewandte Wirtschaftsethik (GfaW). Online verfügbar unter <https://gfaw.eu/wp-content/uploads/2021/04/NCP-Standard-3.8.pdf>, zuletzt geprüft am 16.05.2023.

GGL (2023): Current GGL standard documents. Green Gold Label (GGL). Online verfügbar unter <https://greengoldlabel.com/current-ggl-standards/>, zuletzt geprüft am 17.05.2023.

GlobalG.A.P. (2023): GLOBALG.A.P. standards. Online verfügbar unter https://www.globalgap.org/uk_en/for-producers/globalg.a.p./, zuletzt geprüft am 15.05.2023.

Gold Standard (2023): Standards Documents. Online verfügbar unter <https://www.goldstandard.org/project-developers/standard-documents>, zuletzt geprüft am 15.05.2023.

GOTS (2023): The Standard. Global Organic Textile Standard (GOTS). Online verfügbar unter <https://global-standard.org/the-standard>, zuletzt geprüft am 15.05.2023.

GRI (2023): The global standards for sustainability impacts. Global Reporting Initiative (GRI). Online verfügbar unter <https://www.globalreporting.org/standards/>, zuletzt geprüft am 15.05.2023.

GSA (2023): Resources. Global Seafood Alliance (GSA). Online verfügbar unter <https://www.globalseafood.org/education/>, zuletzt geprüft am 15.05.2023.

International Trade Centre (2021): ITC Standards Map. The world's largest database for sustainability standards. Online verfügbar unter <https://www.standardsmap.org/en/home>, zuletzt geprüft am 22.05.2023.

ISCC (2023): ISCC Documents. International Sustainability & Carbon Certification (ISCC). Online verfügbar unter <https://www.iscc-system.org/certification/iscc-documents/>, zuletzt geprüft am 12.05.2023.

IVN (2018): Naturtextil IVN certified BEST (IVN BEST). Version 6.1. International Association of Natural Textile Industry (IVN). Online verfügbar unter https://naturtextil.de/wp-content/uploads/2020/08/Richtlinie_IVN_Best_6_1_English_2018_08_01.pdf, zuletzt geprüft am 16.05.2023.

Label online (2023): Label searcher. Online verfügbar unter <https://label-online.de/>, zuletzt geprüft am 23.05.2023.

MSC (2023): The Fisheries Standard 3.0. Marine Stewardship Council (MSC). Online verfügbar unter <https://www.msc.org/standards-and-certification/fisheries-standard/version-3>, zuletzt geprüft am 16.05.2023.

PEFC (2023): Technical documentation. Programme for the Endorsement of Forest Certification Schemes (PEFC). Online verfügbar unter <https://pefc.org/resources/technical-documentation>, zuletzt geprüft am 16.05.2023.

PoetCom (2023): Pacific Organic Standard. Online verfügbar unter <https://www.organicpasifika.com/poetcom/membership/pacific-organic-standard/>, zuletzt geprüft am 16.05.2023.

Rainforest Allianc (2023): 2020 Certification Program. Online verfügbar unter <https://www.rainforest-alliance.org/for-business/2020-certification-program/>, zuletzt geprüft am 16.05.2023.

REDcert GmbH (2023): Scheme documents. Online verfügbar unter <https://www.redcert.org/en/redcert-systems/system-documents.html>, zuletzt geprüft am 12.05.2023.

RSB (2023): RSB Procedures & Standards. Roundtable on Sustainable Biomaterials (RSB). Online verfügbar unter https://rsb.org/rsb_library_categories/rsb-standard/, zuletzt geprüft am 12.05.2023.

RSPO (2023): Resources. Roundtable on Sustainable Palm Oil (RSPO). Online verfügbar unter <https://rspo.org/resources/>, zuletzt geprüft am 12.05.2023.

RTRS (2023): Certification scope. Round Table on Responsible Soy Association (RTRS). Online verfügbar unter <https://responsiblesoy.org/certificacion?lang=en>, zuletzt geprüft am 12.05.2023.

SAI (2023): SAI Platform Resource Centre. Access the extensive library of guidance resources. Sustainable Agriculture Initiative (SAI) Platform. Online verfügbar unter <https://saiplatform.org/resource-centre/fsa/>, zuletzt geprüft am 16.05.2023.

SAN (2023): Sustainable Agriculture Framework. Sustainable Agriculture Network (SAN). Online verfügbar unter <https://www.sustainableagriculture.eco/sustainable-agriculture-framework-2021>, zuletzt geprüft am 18.05.2023.

SBP (2019): SBP Standards v2.0. Sustainable Biomass Program (SBP). Online verfügbar unter <https://sbp-cert.org/documents/normative-documents/version-2/standards-v2/>, zuletzt geprüft am 16.05.2023.

Scarlat, Nicolae; Dallemand, Jean-François; Monforti-Ferrario, Fabio; Nita, Viorel (2015): The role of biomass and bioenergy in a future bioeconomy: Policies and facts. In: *Environmental Development* 15, S. 3–34. DOI: 10.1016/j.envdev.2015.03.006.

SFI (2022): The SFI Forest Management Standard. Sustainable Forestry Initiative (SFI). Online verfügbar unter <https://forests.org/forestmanagementstandard/>, zuletzt geprüft am 16.05.2023.

Textile Exchange (2023): Our Standards. Online verfügbar unter <https://textileexchange.org/standards/>, zuletzt geprüft am 16.05.2023.

TfS (2023): How we do it. Together for Sustainability (TfS). Online verfügbar unter <https://www.tfs-initiative.com/how-we-do-it>, zuletzt geprüft am 16.05.2023.

The Carbon Trust (2023): Product carbon footprint label. Online verfügbar unter <https://www.carbontrust.com/what-we-do/assurance-and-labelling/product-carbon-footprint-label>, zuletzt geprüft am 15.05.2023.

TÜV Austria Holding AG (2023): Doc Center. OK biobased & NEN biobased%. Online verfügbar unter <https://www.tuv-at.be/green-marks/doc-center/>, zuletzt geprüft am 18.05.2023.

VCS (2022): Verified Carbon Standard. Verra. Online verfügbar unter <https://verra.org/programs/verified-carbon-standard/>, zuletzt geprüft am 16.05.2023.

ANNEX I SUSTAINABILITY REQUIREMENTS OF THE SELECTED CSLs

Sustainability Pillar	Topic	Requirement	Alliance for Water Stewardship (AWS)	Aquaculture Stewardship Council (ASC) ¹	Better Biomass	Better Cotton	Bonsucro	BRCGS Ethical Trade and Responsible Sourcing	BREEAM	Cradle to Cradle Certified	EU Ecolabel - Paper	EU Ecolabel - Textiles	EU organic farming logo	Fairtrade International ²	Fairtrade International Textile Standard	Forest Stewardship Council (FSC)	GlobalG.A.P. ³	Global Organic Textile Standard (GOTS)	Global Reporting Initiative (GRI)	Global Seafood Alliance (GSA) ⁴	ISCC PLUS & ISCC EU	Marine Stewardship Council (MSC)	Nature Care Products (NCP) Standard	Naturtextil IVN certified BEST	Pacific Organic Standard ⁵	PEFC International	Rainforest Alliance	Recognised	REDCert ² & REDcert EU	Round Table on Responsible Soy Association (RTRS)	Roundtable on Sustainable Biomaterials (RSB)	Roundtable on Sustainable Palm Oil (RSPO)	SAI Platform - Farm Sustainability Assessment (FSA)	SGE 21	Sustainable Biomass Program (SBP)	Textile Exchange ⁶	Together for Sustainability (Tfs)	Verified Carbon Standard (VCS)					
Environment	Soil	Soil: general principle																																									
Environment	Soil	Criteria on soil erosion																																									
Environment	Soil	Criteria on soil conservation																																									
Environment	Soil	Criteria on soil quality, productivity and biodiversity																																									
Environment	Soil	Criteria on soil nutrients																																									
Environment	Soil	Criteria on soil contamination																																									
Environment	Soil	Criteria on soil preparation for specific crops / plant spacing																																									
Environment	Soil	Criteria on soil enhancement by crop rotation or intercropping																																									
Environment	Soil	Criteria on soil enhancement by use of cover crops																																									
Environment	Soil	Criteria on soil compaction																																									
Environment	Soil	Other criteria on soil																																									



Environment	Water	Criteria on verification of mandatory certificates and permits related to water use	
Environment	Water	Criteria on water management plan	
Environment	Water	Criteria on water usage records keeping	
Environment	Water	Criteria on water resources monitoring, use and consumption	
Environment	Water	Criteria on water dependencies and water scarcity	
Environment	Water	Criteria on natural wetlands maintained in undrained conditions	
Environment	Water	Criteria on water reuse, recycling and harvesting	
Environment	Water	Criteria on water extraction / irrigation	
Environment	Water	Criteria on mitigation of transboundary effects of water pollution	
Environment	Water	Criteria on surface and ground water contamination / pollution	
Environment	Water	Criteria on quality of water used in production	
Environment	Water	Criteria on principles and practices on water disposal / storage	
Environment	Water	Criteria on limitations of wastewater volume	
Environment	Water	Criteria on wastewater quality management and treatment	



This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement N° 101060133



Environment	Water	Criteria on wastewater basic parameters for textile industry												
Environment	Water	Criteria on wastewater advanced parameters for textile industry												
Environment	Water	Criteria on wastewater parameters for paper industry												
Environment	Water	Other criteria relating to water												
Environment	Biodiversity	Biodiversity: overarching principle												
Environment	Biodiversity	Criteria to ensure adherence to international and national conventions on biodiversity and best practices (CITES, CBD, CMS, CCD, among others)												
Environment	Biodiversity	Criteria on sustainable management and use of natural resources												
Environment	Biodiversity	Criteria on impact assessment policy for new production												
Environment	Biodiversity	Criteria on impact mitigation prior to production / harvesting operations												
Environment	Biodiversity	Principles and criteria for the conversion of agriculture land to non-agriculture purposes												
Environment	Biodiversity	Criteria on human settlements in or close to production areas (to reduce food loss)												








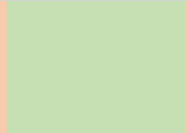



















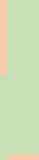
























Environment	Biodiversity	Criteria on spatial management criteria (creating / maintaining / protecting set asides, buffer zones or conservation areas)	
Environment	Biodiversity	Criteria relating to identifying risks and impacts on ecosystem services	
Environment	Biodiversity	Criteria on natural wetlands and/or watercourses affected by production	
Environment	Biodiversity	Criteria on safeguards against fragmentation of ecosystems/habitats	
Environment	Biodiversity	Criteria on habitat/ecosystem restoration/rehabilitation	
Environment	Biodiversity	Criteria on post-production practices	
Environment	Biodiversity	Criteria on maintaining or protecting rare, threatened or endangered ecosystems	
Environment	Biodiversity	Criteria on protection of rare, endangered or threatened species and their habitats	
Environment	Biodiversity	Criteria on the protection of ecosystems against invasive species	
Environment	Biodiversity	Criteria on maintaining, restoring, prioritizing native species	
Environment	Biodiversity	Criteria on wildlife - general principle	



Environment	Biodiversity	Criteria on rare, threatened or endangered wildlife species																		
Environment	Biodiversity	Criteria for regulated and suitable housing of wildlife living specimens																		
Environment	Biodiversity	Criteria for regulated use and access to wildlife species and native flora																		
Environment	Biodiversity	Criteria for minimized impacts on wildlife populations																		
Environment	Biodiversity	Criteria for the monitoring and protection of High Conservation Value Areas																		
Environment	Biodiversity	Criteria on prohibition of production on land with High Conservation Value (HCV) with conversion cut-off date not later than December 2009																		
Environment	Biodiversity	Criteria on prohibition of production on land with High Conservation Value (HCV) with non-conversion cut-off date between January 2011 and December 2020																		
Environment	Biodiversity	Criteria on HCV as intended in the HCV Resource Network																		
Environment	Biodiversity	Criteria on prohibition of production on land with High Conservation Area recognized by independent expertise																		



This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement N° 101060133

Environment	Biodiversity	Criteria on legally protected and internationally recognized areas for their biodiversity							
Environment	Biodiversity	Criteria on biodiversity hotspots							
Environment	Biodiversity	Criteria for no net loss in biodiversity							
Environment	Biodiversity	Criteria for net positive gain in biodiversity							
Environment	Biodiversity	Criteria related to technological means to map locations of areas of ecological importance							
Environment	Biodiversity	Criteria to avoid crop disease cross-contamination							
Environment	Biodiversity	Criteria on diversity of planting materials, seeds and crops genotypes							
Environment	Biodiversity	Criteria for the use of biotechnologies							
Environment	Biodiversity	Practices and criteria for open pit/underground (extractive metals and minerals practices)							
Environment	Biodiversity	Criteria and practices on the clearing of land with fire or explosives							
Environment	Biodiversity	Criteria for monitoring / preserving aquaculture density/ diversity							
Environment	Biodiversity	Specific criteria for wild catch fisheries: procedures regarding management and reduction of discards - non target species							



This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement N° 101060133

Environment	Biodiversity	Specific criteria for wild catch fisheries: prohibition of destructive fishing methods such as dynamite and poison	
Environment	Biodiversity	Specific criteria for wild catch fisheries: sustainable exploitation of marine resources including restoration of overfished and depleted stocks	
Environment	Biodiversity	Other criteria on biodiversity	
Environment	Forest	Forestry issues: general principle	
Environment	Forest	Criteria on legal compliance: Harvest rights	
Environment	Forest	Criteria on legal compliance: Payments for harvest rights	
Environment	Forest	Criteria to prevent deforestation	
Environment	Forest	Criteria on regeneration of tree cover after logging	
Environment	Forest	Criteria on sustainable timber harvesting	
Environment	Forest	Criteria to remediate deforestation	
Environment	Forest	Criteria to enhance conservation of forests	
Environment	Forest	Criteria on maintenance of records of forests at least 5-years period	

Environment	Forest	Criteria on forest management plan (FMP) baseline objectives and assessment of current conditions (stockings, species, age classes of trees etc)	[Background: Light orange with scattered green rectangular blocks]									
Environment	Forest	Criteria on FMP annual allowable cut	[Background: Light orange with scattered green rectangular blocks]									
Environment	Forest	Criteria on FMP annual allowable exploitation of non-timber forest products	[Background: Light orange with scattered green rectangular blocks]									
Environment	Forest	Criteria on inclusion of all forest resources in at least long-term objectives of FMP	[Background: Light orange with scattered green rectangular blocks]									
Environment	Forest	Criteria on preparation of public summary of the FMP	[Background: Light orange with scattered green rectangular blocks]									
Environment	Forest	Criteria on FMP results be incorporated in a consistent and replicable monitoring system	[Background: Light orange with scattered green rectangular blocks]									
Environment	Forest	Criteria specifically defined in FMP as baseline indicators for monitoring of forests resources	[Background: Light orange with scattered green rectangular blocks]									
Environment	Forest	Criteria on making publicly available FMP monitoring results	[Background: Light orange with scattered green rectangular blocks]									
Environment	Forest	Criteria for the conversion of forests into production lands	[Background: Light orange with scattered green rectangular blocks]									
Environment	Forest	Criteria on mix land-use system in agroforestry	[Background: Light orange with scattered green rectangular blocks]									
Environment	Forest	Criteria on shadow, fruit or timber producing plants in the farm	[Background: Light orange with scattered green rectangular blocks]									



This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement N° 101060133

Environment	Forest	Other criteria on forestry conservation (e.g. prohibition of genetically modified trees, natural/semi natural forests reflecting natural disturbance, scenic landscapes, etc.)														
Environment	Input	Chemicals: general principle														
Environment	Input	Criteria on prohibition of use of any pesticides and other related chemical substances														
Environment	Input	Criteria on prohibition of use of hazardous chemicals (as defined by WHO 1A and B, 2 and the Stockholm and Rotterdam conventions)														
Environment	Input	Criteria on prohibition of use of hazardous chemicals (as defined by PAN International List of Highly Hazardous Pesticides and REACH Convention)														
Environment	Input	Criteria on respect list of prohibited chemicals as harmful or a risk to human health														
Environment	Input	Criteria on respect list of prohibited chemicals as harmful or a risk to the environment														



This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement N° 101060133

Environment	Input	Criteria on restricted use of other substances which have impact on human health and the environment	
Environment	Input	Criteria on respect of list of permitted chemicals of low concern for the intended use of product	
Environment	Input	Criteria on the use of surfactants, cleaning agents and foam inhibitors	
Environment	Input	Criteria on the use of formaldehyde	
Environment	Input	Criteria on the use of nanomaterials	
Environment	Input	Criteria on the use of flame retardants	
Environment	Input	Criteria related to the use of chlorine gas as bleaching agent	
Environment	Input	Criteria related to the use of azo dyes that may cleave aromatic amines which are harmful to human health	
Environment	Input	Criteria on the biodegradability of substances	
Environment	Input	Criteria on appropriated tests of "toxicity"	
Environment	Input	Criteria on the use of mercury, cadmium, lead, chromium VI	



Environment	Input	Criteria on implementation of an Integrated Pest Management (IPM) system	[Heatmap visualization with green and orange cells]									
Environment	Input	Criteria on chemical application records and reduction	[Heatmap visualization with green and orange cells]									
Environment	Input	Criteria on chemicals : selective & targeted application	[Heatmap visualization with green and orange cells]									
Environment	Input	Criteria on Protection of non-target areas from agro-chemical use	[Heatmap visualization with green and orange cells]									
Environment	Input	Criteria on regular recalibration of agro-chemicals application equipment	[Heatmap visualization with green and orange cells]									
Environment	Input	Criteria on the principle to use pesticides as last resort only	[Heatmap visualization with green and orange cells]									
Environment	Input	Criteria on chemicals variation to prevent pest resistance	[Heatmap visualization with green and orange cells]									
Environment	Input	Criteria on the monitoring harmful organisms by observations in the field or warning, forecasting and early diagnosis systems (e.g. traps)	[Heatmap visualization with green and orange cells]									
Environment	Input	Criteria asking use of biological control agents to comply with internationally recognized standards and/or protocols	[Heatmap visualization with green and orange cells]									
Environment	Input	Criteria on training on chemicals handling and exposure	[Heatmap visualization with green and orange cells]									



This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement N° 101060133

Environment	Energy	Specific criteria for the use of wood-based energy	
Environment	Energy	Criteria for the use of biofuels	
Environment	Energy	Criteria for monitoring the use of biofuels.	
Environment	Energy	Other criteria on energy consumption and management	
Environment	Climate	GHG policies: general principle	
Environment	Climate	Criteria on monitoring GHG carbon emissions	
Environment	Climate	Criteria on quantifying GHG emissions	
Environment	Climate	Criteria on reducing GHG emissions	
Environment	Climate	Criteria on performing analysis of possible alternatives to reduce GHG emissions	
Environment	Climate	Criteria on sequestration of green-house gases	
Environment	Climate	Criteria on soil or trees sequestration of greenhouse gazes	
Environment	Climate	Criteria on additionality tests	
Environment	Climate	Criteria on Carbon Neutrality	
Environment	Climate	Criteria on using offsets	
Environment	Climate	Criteria on offsetting externalitie	
Environment	Climate	Criteria on type of carbon offsets project	
Environment	Climate	Criteria on registry of carbon projects	
Environment	Climate	Criteria on crediting periods	



This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement N° 101060133

Environment	Climate	Criteria on specific climate adaptation activities	
Environment	Climate	Criteria on High Carbon Stock areas monitoring and management	
Environment	Climate	Criteria on high carbon landscapes protection	
Environment	Climate	Other criteria on carbon policies and management	
Environment	Animals	Animals: general principle	
Environment	Animals	Criteria on animals treatment and welfare	
Environment	Animals	Criteria on animals feeding	
Environment	Animals	Criteria on daily access to clean drinking water for animals	
Environment	Animals	Criteria on animals having periods of light and dark within each 24 hour period	
Environment	Animals	Criteria on animal housing	
Environment	Animals	Criteria on animal stocking density following official regulations	
Environment	Animals	Criteria on outdoor access for animals	
Environment	Animals	Criteria on protection from predators	
Environment	Animals	Criteria on animal breeding	
Environment	Animals	Criteria on minimum age for young animals weaning	



This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement N° 101060133

Environment	Animals	Criteria on procedures on animal identification							
Environment	Animals	Criteria on procedures on animal castration							
Environment	Animals	Criteria on procedures on animal testing							
Environment	Animals	Criteria on the use of electric prods with animals							
Environment	Animals	Criteria on animals' physical integrity							
Environment	Animals	Criteria on transport of animals							
Environment	Animals	Criteria on procedures on slaughter							
Environment	Animals	Criteria on setting an Animal Health Plan							
Environment	Animals	Criteria on animals medication							
Environment	Animals	Criteria on procedures to prevent the on site and off site spread of animal disease							
Environment	Animals	Criteria on monitoring animals mortality on site							
Environment	Animals	Criteria on animal feed responsible sourcing policy							
Environment	Animals	Criteria on origin of animal feed							
Environment	Animals	Criteria on quality of animal feed							
Environment	Animals	Criteria on organic animal feed							
Environment	Animals	Criteria on litter / manure							
Environment	Animals	Specific criteria for beekeeping: interior / exterior housing							

Environment	Animals	Specific criteria for beekeeping: honey extraction process	
Environment	Animals	Specific criteria for aquaculture: polyculture	
Environment	Animals	Specific criteria for aquaculture: analysis of water quality	
Environment	Animals	Specific criteria for aquaculture: systems in place to minimize the unintentional release or escape of farmed species	
Environment	Animals	Specific criteria for aquaculture: use of hatchery raised seed	
Environment	Animals	Specific criteria for aquaculture: prohibition of prophylactic use of antimicrobials	
Environment	Animals	Other criteria on animals	
Social	Human Rights	Criteria on human rights: general principle	
Social	Human Rights	Criteria on policies and procedures addressing human rights	
Social	Human Rights	Criteria on ongoing processes for human rights due diligence	
Social	Human Rights	Criteria on human rights due diligence in conflict-affected areas	
Social	Human Rights	Criteria on human rights policy endorsed at appropriate level (seniority& budget)	
Social	Human Rights	Criteria on human rights violations grievance mechanism	



Social	Human Rights	Criteria on grievance committee being gender balanced in its composition	
Social	Human Rights	Criteria on grievance procedures being transparent and accessible	
Social	Human Rights	Criteria on using independent expertise to assess human rights violations risks and adequate policies to address them	
Social	Labour rights	Criteria on working conditions overarching principles	
Social	Labour rights	Criteria on existence of publicly available policy defining workers' rights	
Social	Labour rights	Criteria on setting up procedures to manage basic labour rights in the workplace	
Social	Labour rights	Criteria on scope of workers' rights and benefits applicable equally to all types of workers	
Social	Labour rights	Criteria on ILO Core Labour Standards (Suppliers)	
Social	Labour rights	Criteria related to compliance with all ILO core labour standards are verified by a third party	



Social	Labour rights	Criteria on conditions of employment: general principle	
Social	Labour rights	Human resources management: general principle	
Social	Labour rights	Criteria on policies and procedures to monitor workers' satisfaction at work	
Social	Labour rights	Criteria on voluntary employment - No forced labour (ILO 29 & 105)	
Social	Labour rights	Criteria on policies that prohibit the use of physical or psychological violence	
Social	Labour rights	Criteria on the prohibition of monetary deposits, financial guarantees or retention of personal possessions	
Social	Labour rights	Criteria on illegal/excessive deductions or fees (incl. Recruitment fees)	
Social	Labour rights	Criteria on debt bondage	
Social	Labour rights	Criteria for advance payments requests	
Social	Labour rights	Criteria on retention of workers' documentation and personal possessions (ID, passport)	
Social	Labour rights	Criteria on workers mobility and freedom of movement	
Social	Labour rights	Criteria on right to refuse overtime	



Social	Labour rights	Criteria for keeping records of disciplinary measures	
Social	Labour rights	Criteria on forced labour remediation policy	
Social	Labour rights	Criteria on security issues / role and behaviour of security guards	
Social	Labour rights	Criteria on privacy protection	
Social	Labour rights	Criteria related to child labour and minimum age (ILO 138)	
Social	Labour rights	Criteria related to worst forms of child labour (ILO 182)	
Social	Labour rights	Criteria on child labour legal compliance policy	
Social	Labour rights	Criteria relating to maintaining age records of workers	
Social	Labour rights	Criteria on child labour remediation policy (including assistance to child workers and their families)	
Social	Labour rights	Criteria on children attendance to school	
Social	Labour rights	Criteria for hiring and employing young workers	
Social	Labour rights	Criteria on good conditions of work for young workers	
Social	Labour rights	Criteria on young workers working hours	
Social	Labour rights	Criteria on young workers access to effective grievance mechanisms	



This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement N° 101060133

Social	Labour rights	Criteria on non-discrimination at work (ILO 111)	
Social	Labour rights	Criteria related specifically to non-discrimination based on gender	
Social	Labour rights	Criteria related specifically to non-discrimination of persons with disabilities	
Social	Labour rights	Criteria on non-discrimination regarding unions	
Social	Labour rights	Criteria on non-discrimination against workers using the organisation's grievance mechanisms	
Social	Labour rights	Criteria on discrimination at recruitment stage	
Social	Labour rights	Criteria on discrimination remediation policy	
Social	Labour rights	Criteria on freedom of association (ILO 87)	
Social	Labour rights	Criteria on collective Bargaining (ILO 98)	
Social	Labour rights	Criteria on joint committees / trade unions / labour associations	



Social	Labour rights	Criteria on the formation of workers representation in countries where freedom of association and collective bargaining is not supported by legislation	
Social	Labour rights	Criteria on communicating Freedom of Association rights to workers	
Social	Labour rights	Criteria on occupational health and safety, as defined in ILO 155	
Social	Labour rights	Criteria relating to safety at work (ILO 184)	
Social	Labour rights	Criteria on safety at work - legal compliance	
Social	Labour rights	Criteria on workplace safety	
Social	Labour rights	Criteria on policies in place for verification and maintenance of buildings safety	
Social	Labour rights	Criteria on maintenance of safety of machinery, equipment and materials	
Social	Labour rights	Criteria on electrical equipment's safety	
Social	Labour rights	Criteria on fire preparedness (drills, equipment, signs)	
Social	Labour rights	Criteria on regular and scheduled emergency exit maintenance	
Social	Labour rights	Criteria on emergency first aid kits	



This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement N° 101060133

Social	Labour rights	Criteria on workers equipment costs (incl. PPEs and uniforms).	[Green]	[Green]	[Orange]	[Green]	[Orange]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]
Social	Labour rights	Criteria on documented emergency management plan and publicly available evacuation procedures	[Green]	[Green]	[Orange]	[Green]	[Orange]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]
Social	Labour rights	Criteria on safety procedures for handling chemicals	[Green]	[Green]	[Orange]	[Green]	[Orange]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]
Social	Labour rights	Criteria on safety procedures being in local languages/understandable by workers	[Green]	[Green]	[Orange]	[Green]	[Orange]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]
Social	Labour rights	Criteria on safety equipments & personal protective equipment	[Green]	[Green]	[Orange]	[Green]	[Orange]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]
Social	Labour rights	Criteria on monitoring of accidents records	[Green]	[Green]	[Orange]	[Green]	[Orange]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]
Social	Labour rights	Criteria on workers' access to basic medical services: Infirmary at production site / transportation to off-site medical facilities	[Green]	[Green]	[Orange]	[Green]	[Orange]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]
Social	Labour rights	Criteria on regular medical checks	[Green]	[Green]	[Orange]	[Green]	[Orange]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]
Social	Labour rights	Criteria on provision of medical care services	[Green]	[Green]	[Orange]	[Green]	[Orange]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]
Social	Labour rights	Criteria on workers' compensation for medical costs in case of work related accidents	[Green]	[Green]	[Orange]	[Green]	[Orange]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]
Social	Labour rights	Criteria on workers' access to safe drinking water	[Green]	[Green]	[Orange]	[Green]	[Orange]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]	[Green]	[Orange]



This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement N° 101060133

Social	Labour rights	Criteria on employment / recruitment agencies' compliance with the organization's labour rights policy	
Social	Labour rights	Criteria on recruitment fees	
Social	Labour rights	Criteria on communication of terms of employment	
Social	Labour rights	Criteria for the use of legally binding labour contracts in written form	
Social	Labour rights	Criteria on use of formal format or template for labour contracts to define all rights and obligations of workers	
Social	Labour rights	Criteria on clear employment contracts in a language understandable to the worker	
Social	Labour rights	Criteria on workforce reduction policies and practices - legal compliance	
Social	Labour rights	Criteria on termination of employment	
Social	Labour rights	Criteria on protection of wages as per ILO Conventions C95	
Social	Labour rights	Criteria related to equal remuneration (ILO 100)	
Social	Labour rights	Criteria on fair and timely payment of wages	
Social	Labour rights	Criteria on non-authorized wage deductions	



Social	Labour rights	Criteria related to hours of work & overtime monitoring	[Heatmap visualization]											
Social	Labour rights	Criteria on overtime being voluntary and compensated	[Heatmap visualization]											
Social	Labour rights	Criteria on Medical Care and Sickness Benefits Convention (ILO C130)	[Heatmap visualization]											
Social	Labour rights	Criteria on workers' access to medical insurance	[Heatmap visualization]											
Social	Labour rights	Criteria on pensions and social security benefits	[Heatmap visualization]											
Social	Labour rights	Criteria related to waivers/national exemptions to full scope coverage of social benefits for all employees	[Heatmap visualization]											
Social	Labour rights	Criteria on 1 rest day off in 7-days period or more stringent policy	[Heatmap visualization]											
Social	Labour rights	Criteria on 2 rest days, each of consecutive 24 hours, in a 14-days period	[Heatmap visualization]											
Social	Labour rights	Criteria on paid leave: general policy (public holidays, annual leave, sick leave, casual leave)	[Heatmap visualization]											
Social	Labour rights	Criteria on special leave (sickness, marriage, family leave)	[Heatmap visualization]											
Social	Labour rights	Criteria on maternity protection	[Heatmap visualization]											
Social	Labour rights	Criteria on child care benefits and on-site day-care facilities	[Heatmap visualization]											



Social	Labour rights	Criteria on gender policies at work - general principles	
Social	Labour rights	Criteria relating to women's rights at work	
Social	Labour rights	Criteria relating to sexual exploitation / harassment	
Social	Labour rights	Criteria on women's access to health and safety services	
Social	Labour rights	Criteria on scope of female workers' rights and benefits applicable equally to all types of female workers (full time, seasonal, part time, migrants, coming from minority groups, etc.)	
Social	Labour rights	Criteria on management systems practices to monitor, evaluate and remediate gender specific issues	
Social	Labour rights	Criteria to reduce the gender wage gap	
Social	Labour rights	Criteria on female workers' entitlement to breaks (e.g. meals/breastfeeding breaks)	
Social	Labour rights	Criteria for assessment of female workers performance (for promotion, trainings)	
Social	Labour rights	Criteria on incentives to women to develop their careers (e.g. specific training)	



This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement N° 101060133

Social	Local communities	Criteria on planning / implementation of resettlement activities	[Green and orange bars representing data points]									
Social	Local communities	Criteria on compensation and benefits for displaced persons	[Green and orange bars representing data points]									
Social	Local communities	Criteria on livelihood restoration for displaced persons	[Green and orange bars representing data points]									
Social	Local communities	Criteria on assessing production practices possible impacts on food security	[Green and orange bars representing data points]									
Social	Local communities	Criteria related to production practices that reduce food and feed waste	[Green and orange bars representing data points]									
Social	Local communities	Criteria relating to conduct of security personnel towards communities	[Green and orange bars representing data points]									
Social	Local communities	Criteria relating to indigenous peoples as defined in ILO convention 169	[Green and orange bars representing data points]									
Social	Local communities	Criteria relating to the protection of indigenous rights	[Green and orange bars representing data points]									
Social	Local communities	Criteria relating to establishment of a code of conduct for local and indigenous communities	[Green and orange bars representing data points]									
Social	Local communities	Criteria on the protection of minority rights and marginalized groups	[Green and orange bars representing data points]									
Social	Local communities	Criteria on basic human local communities engagement	[Green and orange bars representing data points]									



This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement N° 101060133

Social	Local communities	Criteria on engagement & consultation with local communities	
Social	Local communities	Criteria on Free, Prior and Informed Consent (FPIC) of local communities	
Social	Local communities	Criteria on grievance mechanisms for affected communities	
Social	Local communities	Criteria on traditional and cultural production practices	
Social	Local communities	Criteria on traditional knowledge used for conservation and sustainable use of biodiversity	
Social	Local communities	Criteria on compensation for use of local communities facilities (traditional knowledge, infrastructure access and benefits sharing)	
Social	Local communities	Criteria on supporting local communities economic development	
Social	Local communities	Criteria on hiring workers from local communities	
Social	Local communities	Criteria on purchasing local materials, goods, products and services	
Social	Local communities	Criteria on community investment: services and benefits offered to communities beyond the business' operations	



This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement N° 101060133

Social	Local communities	Criteria on Community Engagement	
Social	Local communities	Gender issues: general principle	
Social	Local communities	Criteria on gender policies and best practices	
Social	Local communities	Criteria on factoring gender equity considerations in stakeholder engagement process	
Social	Local communities	Criteria on upgrading the status of and wages for traditional areas of women's work	
Social	Local communities	Criteria relating on distribution networks and access to markets / buyers for women	
Social	Local communities	Criteria on access to financial services for women (payment, credit, savings, subsidies)	
Social	Local communities	Criteria on increased access to finance and support services for women entrepreneurs	
Social	Local communities	Criteria on internationally recognized / legally protected sites and cultural heritage (e.g. UNESCO Convention)	
Social	Local communities	Criteria on the protection of socio-cultural sites	



Social	Local communities	Criteria on historical, cultural and archaeological artefacts trade	[Detailed criteria content obscured by a large orange and green graphical overlay]											
Social	Local communities	Criteria on local access to historical, cultural, archaeological and spiritually important properties, and sites and heritage	[Detailed criteria content obscured by a large orange and green graphical overlay]											
Social	Local communities	Criteria on interpretive materials and behaviour guidelines	[Detailed criteria content obscured by a large orange and green graphical overlay]											
Management and Ethics	Economic Viability	Criteria on business operations economic viability: general principle	[Detailed criteria content obscured by a large orange and green graphical overlay]											
Management and Ethics	Economic Viability	Criteria on fair competition	[Detailed criteria content obscured by a large orange and green graphical overlay]											
Management and Ethics	Economic Viability	Criteria on production efficiency / productivity	[Detailed criteria content obscured by a large orange and green graphical overlay]											
Management and Ethics	Economic Viability	Criteria on diversification of business operations	[Detailed criteria content obscured by a large orange and green graphical overlay]											
Management and Ethics	Economic Viability	Criteria on long term sustainability management plan / continuous improvement	[Detailed criteria content obscured by a large orange and green graphical overlay]											
Management and Ethics	Economic Viability	Criteria on administration and management / business plan	[Detailed criteria content obscured by a large orange and green graphical overlay]											
Management and Ethics	Sustainability Management	Criteria on Environment and Social (E&S) Management Systems: general principles	[Detailed criteria content obscured by a large orange and green graphical overlay]											



This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement N° 101060133

Management and Ethics	Sustainability Management	Criteria on assessment of risks and impacts on water quality of water resources used (surface and/or ground water)	
Management and Ethics	Sustainability Management	Criteria on assessment of risks and impacts on soil resources condition	
Management and Ethics	Sustainability Management	Criteria on assessment of risks and impacts on biodiversity in (as well as outside) management or production unit	
Management and Ethics	Sustainability Management	Criteria on environment and social risks mitigation and performance improvement	
Management and Ethics	Sustainability Management	Criteria on organizational capacity for continuous improvement of environmental and social (E&S) management (e.g. through Monitoring and Evaluation)	
Management and Ethics	Sustainability Management	Criteria on procedures to monitor and measure effectiveness of E&S management systems (e.g. social impact assessment)	
Management and Ethics	Sustainability Management	Criteria on reporting on and making publicly available E&S management systems (e.g. annual social and environmental reports)	
Management and Ethics	Sustainability Management	Criteria on reporting on and making publicly available E&S management systems (e.g. annual social and environmental reports)	



Management and Ethics	Sustainability Management	Criteria for establishing and making publicly available the management unit Internal Control System	
Management and Ethics	Sustainability Management	Criteria on establishing and making publicly available the management unit CSR policy	
Management and Ethics	Sustainability Management	Criteria on provision of access for persons or workers with special needs	
Management and Ethics	Sustainability Management	Other criteria relating to administration and management issues	
Management and Ethics	Supply Chain Responsibilities	Criteria on market data and analysis	
Management and Ethics	Supply Chain Responsibilities	Criteria on supply chain stakeholders mapping	
Management and Ethics	Supply Chain Responsibilities	Criteria on access to financial services	
Management and Ethics	Supply Chain Responsibilities	Criteria on guarantee of premium on sales of certified product	
Management and Ethics	Supply Chain Responsibilities	Criteria on minimum price guarantees	
Management and Ethics	Supply Chain Responsibilities	Criteria on Living Income Differential	
Management and Ethics	Supply Chain Responsibilities	Criteria for setting-up contracts with traders	
Management and Ethics	Supply Chain Responsibilities	Criteria for inclusion of suppliers and workers' voice in sustainability strategy	
Management and Ethics	Supply Chain Responsibilities	Criteria for supply chain responsibility (beyond primary production)	



Management and Ethics	Ethics	Criteria on obligation to comply with relevant local, regional and national laws and regulations (including legal land tenure, title, having legal rights to use the production or management unit)	
Management and Ethics	Ethics	Criteria on compliance with local zoning and protected or heritage area regulations and laws	
Management and Ethics	Ethics	Ethics: general policy or set of principles	
Management and Ethics	Ethics	Criteria on corruption / bribery prevention	
Management and Ethics	Ethics	Criteria on anti-bribery - Procedures and risk-assessment	
Management and Ethics	Ethics	Criteria on anti-bribery - Political contributions	
Management and Ethics	Ethics	Criteria on anti-bribery - Charitable contributions and sponsorships	
Management and Ethics	Ethics	Criteria on anti-bribery - Facilitation payments	
Management and Ethics	Ethics	Criteria on anti-bribery - Gifts, hospitality and expenses	
Management and Ethics	Ethics	Criteria on anti-bribery - Due-diligence assessment of business partners, incl. subsidiaries and contractors	



Management and Ethics	Ethics	Criteria relating to verification of business license and legality of activities / settlement	
Management and Ethics	Ethics	Criteria relating to intellectual property or customer information protection	
Quality	Product / service quality management	Quality policy: general requirements	
Quality	Product / service quality management	Criteria on quality: compliance to national and international legislation	
Quality	Product / service quality management	Criteria on quality: risk assessment and hazard control procedures	
Quality	Product / service quality management	Criteria on quality: documentation and monitoring procedures	
Quality	Product / service quality management	Criteria on quality: technical specifications	
Quality	Product / service quality management	Criteria on product safety specifications (excl. food safety)	
Quality	Product / service quality management	Criteria on testing quality of inputs to production	
Quality	Product / service quality management	Criteria on testing quality of semi-final products	
Quality	Product / service quality management	Criteria related to testing quality of final products	
Quality	Product / service quality management	Criteria related to energy efficiency of final product during end-of-life	





Quality	Manufactured products quality technical and environmental specifications	Criteria on the use of postconsumer recycled content in the product	
Quality	Manufactured products quality technical and environmental specifications	Criteria related to the recyclability of plastics used	
Quality	Manufactured products quality technical and environmental specifications	Criteria on the usage of recycled fibres	
Quality	Manufactured products quality technical and environmental specifications	Criteria on the quality / durability of specific components	
Quality	Manufactured products quality technical and environmental specifications	Criteria on Quality Management System: defined, controlled and monitored technical processes for non-food manufactured products	
Quality	Manufactured products quality technical and environmental specifications	Criteria on Quality Management System: production site specifications established and monitored through inspections	



Quality	Manufactured products quality technical and environmental specifications	Criteria on Quality Management System: waste management system established and monitored for manufacturing non-food products (volume, toxicity, discharge)	
Quality	Manufactured products quality technical and environmental specifications	Criteria on Quality Management System: water usage management system established and monitored for manufacturing of non-food products (volume, quality, use - re-use and recycling, wastewater discharge)	
Quality	Manufactured products quality technical and environmental specifications	Criteria on Quality Management System: chemicals usage management system established and monitored for manufacturing of non-food products (volume, quality, prohibited substances, storage and hazardous waste discharge)	
Quality	Manufactured products quality technical and environmental specifications	Criteria on Quality Management System: risk assessment for contamination of non-food products	



Quality	Manufactured products quality technical and environmental specifications	Criteria on non-food production - Traceability system established and monitored																		
Quality	Manufactured products quality technical and environmental specifications	Criteria on non-food production - Traceability records maintained through entire chain of production																		
Quality	Manufactured products quality technical and environmental specifications	Criteria on non-food production - labelling system of all inputs through entire production chain																		
Quality	Manufactured products quality technical and environmental specifications	Criteria on non-food production - Product recall policy established, tested and monitored																		
Quality	Manufactured products quality technical and environmental specifications	Criteria on non-food production - Identity preservation model established and monitored: modus operandi																		
Quality	Manufactured products quality technical and environmental specifications	Criteria on non-food production - Segregation model established and monitored: modus operandi																		



Quality	Food/feed management systems	Criteria on definition of a clear food/feed safety statement as regards company's commitment to compliance with legal, market and customers' requirements and means to achieve these	
Quality	Food/feed management systems	Criteria on operation of an effective food/feed safety management system	
Quality	Food/feed management systems	Criteria on organigram and job descriptions, addressing responsibilities and authorities regarding food/feed safety assurance	
Quality	Food/feed management systems	Criteria on establishment of multidisciplinary HACCP team with defined competences	
Quality	Food/feed management systems	Criteria on appointment and training of HACCP team leader	
Quality	Food/feed management systems	Criteria on procedure for external communication	
Quality	Food/feed management systems	Criteria on Food/Feed Safety Management System review (monitoring, customer satisfaction, HACCP, Audits, supplier evaluation) - identification of improvements and improvement implementation action	



This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement N° 101060133

Quality	Food/feed management systems	Criteria on design, construction and maintenance of sites fit for safe food/feed production (materials, minimisation of premise bound carry-over, etc.	
Quality	Food/feed management systems	Criteria on site location / clear identification of buildings, production and storage areas	
Quality	Food/feed management systems	Criteria on facilities for eating and drinking separated from production areas	
Quality	Food/feed management systems	Criteria on controlled access to the site, including for visitors, with clearly communicated hygiene instructions	
Quality	Food/feed management systems	Criteria on implementation of protective measures against sabotage, vandalism or terrorism	
Quality	Food/feed management systems	Criteria on assuring enough daylight or artificial light to guarantee safe production of food/feed	
Quality	Food/feed management systems	Criteria on storage conditions, hygiene requirements and verification processes	
Quality	Food/feed management systems	Criteria on storage of chemicals including storage facilities, accessibility and handling by personnel	



Quality	Food/feed management systems	Criteria on water supply volume, quality and safety assured				
Quality	Food/feed management systems	Criteria on suitability of processing aid used during food/feed production for food/feed safety documented				
Quality	Food/feed management systems	Criteria on suitability of packaging materials for food/feed safety				
Quality	Food/feed management systems	Criteria on definition and documented implementation of a proper and complete maintenance programme				
Quality	Food/feed management systems	Criteria on definition and documented implementation of a proper and complete cleaning programme for all sites, buildings, areas and equipment				
Quality	Food/feed management systems	Criteria on food harvesting/processing utensils cleaned, disinfected, sanitized, maintained and protected from contamination				
Quality	Food/feed management systems	Criteria on suitability and lawful use of cleaning and/or sanitising agents for food/feed safety				



This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement N° 101060133

Quality	Food/feed management systems	Criteria on definition and documented implementation of a proper and complete pest control programme for all sites, buildings and areas								
Quality	Food/feed management systems	Criteria on qualification of internal and external people assured								
Quality	Food/feed management systems	Criteria on waste management system (volume, toxicity, recycling, discharge)								
Quality	Food/feed management systems	Criteria on waste water drainage, discharge, re-using, recycling processes								
Quality	Food/feed management systems	Criteria on review and assessment of all suppliers, contracts and services								
Quality	Food/feed management systems	Criteria on procedure to approve the ingredient - supplier combination								
Quality	Food/feed management systems	Criteria on suppliers' evaluation								
Quality	Food/feed management systems	Criteria on establishing flowcharts of the whole production including reception of goods, production, packaging, storage and transport								
Quality	Food/feed management systems	Criteria on establishment and implementation of procedures to plan and schedule production								



Quality	Food/feed management systems	Criteria on product transportation procedures	
Quality	Food/feed management systems	Criteria on assurance that produced products meet the specified Criteria including the food/feed safety schemes	
Quality	Food/feed management systems	Criteria on assurance that potential risks related to drying, especially direct drying, are identified and controlled	
Quality	Food/feed management systems	Criteria on assurance that defined risks related to harvesting, handling, processing, transportation and packaging of food/feed are identified and controlled	
Quality	Food/feed management systems	Criteria on harvested / semi-processed products packaging protection against contamination	
Quality	Food/feed management systems	Criteria on harvested / semi-processed / final products treatment before retail	
Quality	Food/feed management systems	Criteria on food production contamination risks - Glass and wood foreign bodies inspection	



This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement N° 101060133

Quality	Food/feed management systems	Criteria on segregation model	
Quality	Food/feed management systems	Criteria on Mass balance model	
Quality	Food/feed management systems	Procedure for outsourced activities	
Quality	Food/feed management systems	Criteria on food production process & control - Nutritional requirements	
Quality	Food/feed management systems	Criteria on establishing a procedure and implement measurements to define if and how the rework shall be used before the rework is entering the site	
Quality	Food/feed management systems	Criteria on record usage of rework	
Quality	Food/feed management systems	Procedure for outsourced activities	
Quality	Food/feed management systems	Criteria on establishment of procedures to ensure that formulation of products does not introduce any food/feed safety risks	
Quality	Food/feed management systems	Criteria on labelling of products in compliance with applicable legal requirements	



Quality	Food/feed management systems	Criteria on recall simulation	
Quality	Food/feed management systems	Criteria on food/feed safety incidents management procedure established, tested, monitored and evaluated	
Quality	Food/feed management systems	Criteria on food/feed safety incidents records keeping	
Quality	Food/feed management systems	Criteria on procedure for management and correction of non-conformities	
Quality	Food/feed management systems	Criteria on conducting a hazard analysis	
Quality	Food/feed management systems	Criteria on identification of all potential hazards	
Quality	Food/feed management systems	Criteria on determination of CCPs	
Quality	Food/feed management systems	Criteria on establishment of critical limits	
Quality	Food/feed management systems	Criteria on monitoring of CCP's	
Quality	Food/feed management systems	Criteria on establishment of monitoring procedures for CCPs	
Quality	Food/feed management systems	Criteria on assurance that every other hazard is adequately monitored	
Quality	Food/feed management systems	Criteria on establishment of corrective actions	



Quality	Food/feed management systems	Criteria on verification of the HACCP plan including frequency	
Quality	Food/feed management systems	Criteria on records of data to demonstrate effectiveness in controlling the hazards	
Quality	Food/feed management systems	Criteria on assessment whether and how the HACCP plan needs update	
Quality	Food/feed management systems	Criteria on definition of all monitoring activities to demonstrate control the CCP's	
Quality	Food/feed management systems	Criteria on record of monitoring results	
Quality	Food/feed management systems	Criteria on monitoring of incoming products	
Quality	Food/feed management systems	Criteria on quarantine / release procedure based on risk assessment	
Quality	Food/feed management systems	Criteria on sampling	
Quality	Food/feed management systems	Criteria on sampling procedures for incoming goods, finished products and products during production	
Quality	Food/feed management systems	Criteria on food production process & control - Product analysis and testing	
Quality	Food/feed management systems	Criteria on food production process & control - Quantity control procedures	



This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement N° 101060133

Quality	Food/feed management systems	Criteria on laboratory and methods for analysis	
Quality	Food/feed management systems	Criteria on requirements for laboratories	
Quality	Food/feed management systems	Criteria on measuring devices on site	
Quality	Food/feed management systems	Criteria on maintenance and calibration of measuring equipment	
Quality	Food/feed management systems	Documentation of the policy and related food/feed safety objectives	

Green fields indicate that the sustainability requirement is addressed by the CSL, Orange fields indicate that the requirement is not addressed.

¹ Different standards available under ASC; in this selection: ASC-MSC Seaweed (Algae)

² Different standards available under Fairtrade International; in this selection: Fairtrade International Trader Standard

³ Different standards available under GlobalG.A.P.; in this selection: GlobalG.A.P. crops certification

⁴ Different standards available under GSA; in this selection: GSA - Best Aquaculture Practices

⁵ Different standards available under Pacific Ocean Standard; in this selection: Pacific Organic Standard Aquaculture

⁶ Different standards available under Textile Exchange, in this selection: Textile Exchange Organic Content Standard, Global Recycled Standard, and Recycled Claim Standard

ANNEX II INTERNAL SURVEY FOR CSL SELECTION

The following table summarises the results to the internal questionnaire, supporting the CSL selection process.

Question	Answers
Q1. Which aspects regarding the CSLs are of specific interest for your analysis/work in HARMONITOR?	sustainability requirements of CSLs
	verification procedures
	relevance for selected value chains
	risk assessment approaches
	rules for accepting upstream certificates from other CSLs
	internal revision process, management of external feedback received on their performance
	public perception
	stakeholder integration
	economic KPIs
Q2. Which geographical scope is important for the CSL selection?	EU versus non-EU; start from Europe and then enlarge the scope
	CSLs that work with global value chains feeding EU market
	medium/very importance – at the very end the CSL shall cover all relevant criteria in a global format
Q3. Which feedstock focus is important for the CSL selection?	diversity of feedstocks, but flexible for which ones we choose
	CSLs that work with global value chains feeding EU market
	feedstocks with high environmental/social/economic relevance
	we need to cover all relevant large feedstock categories
Q4. Main markets of activity of the CSLs?	exclude bioenergy?
	important to represent the diversity of the BBE.
	textiles, plastics/chemical industry are interesting
	at the very end all bio-based feedstocks shall be certified on the same level
	look at different ambition levels.



Q5. Ambition of the CSL as criteria for selection?	our CSL selection ideally would include both types
Q6. Shall the market relevance of the CSLs be a selection criterion?	important to understand demand and perception as well as market drivers (what can work and what not)
	not important regarding analysis of sustainability requirements, etc.
Q7. Other important aspects?	scope of CSL: not only the geographical scope (also business sector focus, etc.)
	environmental relevance (or social/economic relevance), relevant also for value chain selection and the assessment of CSLs
	high Volume Feedstocks
	data Availability (depth & breadth)
	only CSLs that explicitly work with mandatory independent third-party verification

ANNEX III UNCERTAINTIES CONCERNING VALUE CHAINS COVERAGE BY CSLs

CSL	Uncertainty	Reference
Alliance for Water Stewardship (AWS)	<ul style="list-style-type: none"> No data on feedstocks or products in the scheme documents or on the website. Data are based on the ITC Standards Map and estimates derived from it. Wood as feedstock or products are not specified on ITC Standards Map. We considered forestry for wood. 	(AWS 2022; International Trade Centre 2021)
Aquaculture Stewardship Council (ASC)	<ul style="list-style-type: none"> Data are based on ASC-MSC Seaweed (Algae), ASC Pangasius, Salmon, Shrimps, and Tilapia. Data are also based on the ITC Standards Map. 	(ASC 2023; International Trade Centre 2021)
Better Biomass	Some feedstock (e.g. wood) and products (e.g. wood products) are derived from the list of certificates holders', others are from scheme documents (e.g. UCO, wheat, sugar beet).	(Better Biomass 2023)
Better Cotton	Data are also based on the ITC Standards Map.	(Better Cotton 2023; International Trade Centre 2021)
Bioplastic Feedstock Alliance (BFA)		(BFA 2023)
Bonsucro	Data are also based on the ITC Standards Map.	(Bonsucro 2023; International Trade Centre 2021) https://bonsucro.com/tools-and-resources/
BRCGS Ethical Trade and Responsible Sourcing	<ul style="list-style-type: none"> Scheme documents are not freely available and no feedstock or products specified on website. Data are based on the ITC Standards Map and estimates derived from it. Different Bio-based chemicals are not distinguished on ITC Standards Map. We have considered chemicals for all bio-based chemicals. 	(BRCGS 2023; International Trade Centre 2021)
BREEAM	As BREEAM is a certification system for the assessment and verification of the entire life cycle of buildings (with standards for e.g. new construction, refurbishment and fit-out or in-use), BREEAM is estimated to be suitable for the certification of building materials.	(BREEAM 2023)



Carbon Trust Product Footprint Certification	<ul style="list-style-type: none"> No scheme documents available. No feedstock or products specified on website. Data are also based on the ITC Standards Map. Wood as feedstock or products are not specified on ITC Standards Map. We considered forestry for wood. 	(The Carbon Trust 2023; International Trade Centre 2021)
Cradle to Cradle Certified	Feedstocks and products are based on list of certified products.	(Cradle to Cradle Products Innovation Institute 2023)
EU Ecolabel - Paper	Data are also based on the ITC Standards Map.	(European Commission 2023b; International Trade Centre 2021)
EU Ecolabel - Textiles	<ul style="list-style-type: none"> Data are also based on the ITC Standards Map. Since rayon is a fabric or textile, rayon is considered to be certified with the EU Ecolabel - Textiles. 	(European Commission 2023a; International Trade Centre 2021)
EU organic farming logo	Data are also based on the ITC Standards Map.	(European Commission 2023c; International Trade Centre 2021)
Fairtrade International	<ul style="list-style-type: none"> Data are based on the Fairtrade International Trader Scheme. Other schemes, such as the Fairtrade International - Small Producers Organizations, which has a much smaller focus (feedstocks, regions, products), have not been considered. Data are also based on the ITC Standards Map. 	(Fairtrade International 2023a; International Trade Centre 2021)
Fairtrade International Textile Standard	Data are also based on the ITC Standards Map.	(Fairtrade International 2023b; International Trade Centre 2021)
Forest Stewardship Council (FSC)	<ul style="list-style-type: none"> Data are also based on the ITC Standards Map. Wood as feedstock or products are not specified on ITC Standards Map. We considered forestry for wood. 	(FSC 2023; International Trade Centre 2021)
GlobalG.A.P.	<ul style="list-style-type: none"> Data are based on GlobalG.A.P. Aquaculture, Crops (Plants), Livestock, and GLOBALG.A.P. Risk Assessment on Social Practice (GRASP). Data are also based on the ITC Standards Map. 	(GlobalG.A.P. 2023; International Trade Centre 2021)
Global Organic	Data are also based on the ITC Standards Map.	(GOTS 2023; International Trade Centre 2021)

Textile Standard (GOTS)		
Global Reporting Initiative (GRI)	<ul style="list-style-type: none"> GRI has developed standards for specific sectors. Feedstocks and products related to these sectors (e.g. forestry and logging, production of pulp and paper) were selected. Data are also based on the ITC Standards Map. Wood as feedstock or products are not specified on ITC Standards Map. We considered forestry for wood. 	(GRI 2023; International Trade Centre 2021)
Global Seafood Alliance (GSA)	<ul style="list-style-type: none"> Data are based on Global Seafood Alliance - Best Aquaculture Practices Data are also based on the ITC Standards Map. 	(GSA 2023; International Trade Centre 2021)
Gold Standard	<ul style="list-style-type: none"> No data on feedstocks or products in the scheme documents or on the website. Data are based on the ITC Standards Map and estimates derived from it. 	(Gold Standard 2023; International Trade Centre 2021)
Green Gold Label (GGL)	<ul style="list-style-type: none"> GGL certifies biomass (woody agricultural residues and waste wood biomass) and liquid biofuels for bio-based chemicals and other products, as well as for electricity and heat generation. This means that GGL certifies the feedstock for bio-based chemicals, but not the chemicals. 	(GGL 2023)
ISCC EU & ISCC PLUS	Data are also based on the ITC Standards Map.	(ISCC 2023; International Trade Centre 2021)
Marine Stewardship Council (MSC)	Data are also based on the ITC Standards Map.	(MSC 2023; International Trade Centre 2021)
Nature Care Products (NCP) Standard	Data are also based on the ITC Standards Map.	(GfaW 2021; International Trade Centre 2021)
Naturtextil IVN certified BEST	<ul style="list-style-type: none"> Data are also based on the ITC Standards Map. Different Bio-based chemicals are not distinguished on ITC Standards Map. We have considered chemicals for all bio-based chemicals. 	(IVN 2018; International Trade Centre 2021)

OK biobased	<ul style="list-style-type: none"> All products (partially or completely) made of materials and/or polymers of natural origin are eligible for this certification scheme (except solid, gaseous or liquid fuels). OK biobased was judged for the certification of all chemicals. 	(TÜV Austria Holding AG 2023)
Pacific Organic Standard	<ul style="list-style-type: none"> Data are based on Pacific Organic Standard Aquaculture, Crops, and Livestock. The Pacific Organic Standard only certifies feedstocks from Australia and Oceania. In addition to algae, natural materials for packaging (including leaves, fibres, coconut shells, shells, bamboo) are certified where possible, as well as reusable, recycled, recyclable or biodegradable packaging. Data are also based on the ITC Standards Map. 	(PoetCom 2023; International Trade Centre 2021)
PEFC International (Programme for the Endorsement of Forest Certification)	<ul style="list-style-type: none"> Data are also based on the ITC Standards Map. Wood as feedstock or products are not specified on ITC Standards Map. We considered forestry for wood. 	(PEFC 2023; International Trade Centre 2021)
Rainforest Alliance	Data are also based on the ITC Standards Map.	(Rainforest Alliance 2023; International Trade Centre 2021) https://www.rainforest-alliance.org/
Recognised	<ul style="list-style-type: none"> Geographical scope for feedstocks certified by Recognised is according to the ITC Standards Map Australia and New Zealand. Data are also based on the ITC Standards Map. Different Bio-based chemicals are not distinguished on ITC Standards Map. We have considered chemicals for all bio-based chemicals. 	(Accord Australasia 2022; International Trade Centre 2021)

<p>REDcert, REDcert2</p>	<ul style="list-style-type: none"> ▪ REDcert certifies sustainable agricultural raw materials, e.g. malt barley, sugar beets and oil seeds with focus on Europe and Germany. ▪ REDcert2 includes in particular certification of sustainable material flows in the chemical industry. Therefore, we assume that REDcert2 certifies all bio-based chemicals. ▪ Data are also based on the ITC Standards Map. 	<p>(REDcert GmbH 2023; International Trade Centre 2021)</p>
<p>Round Table on Responsible Soy Association (RTRS)</p>	<p>Data are also based on the ITC Standards Map.</p>	<p>(RTRS 2023; International Trade Centre 2021)</p>
<p>Roundtable on Sustainable Biomaterials (RSB)</p>	<ul style="list-style-type: none"> ▪ RSB website shows some examples of products that could be certified. ▪ RSB certifies every product made from biomass (e.g. crops, wood, waste, etc.). 	<p>(RSB 2023)</p>
<p>Roundtable on Sustainable Palm Oil (RSPO)</p>	<p>Data are also based on the ITC Standards Map.</p>	<p>(RSPO 2023; International Trade Centre 2021)</p>
<p>SAI Platform - Farm Sustainability Assessment FSA</p>	<p>Data are also based on the ITC Standards Map.</p>	<p>(SAI 2023; International Trade Centre 2021)</p>
<p>SGE 21</p>	<ul style="list-style-type: none"> ▪ Geographical scope of SGE 21 is in Europe on Portugal and Spain, and in South America on Chile, Colombia, and Peru. ▪ Data are also based on the ITC Standards Map. ▪ Wood as feedstock or products are not specified on ITC Standards Map. We considered forestry for wood. ▪ Different Bio-based chemicals are not distinguished on ITC Standards Map. We have considered chemicals for all bio-based chemicals. 	<p>(Forética 2023; International Trade Centre 2021)</p>



Sustainable Agriculture Network (SAN)	Feedstocks and products are derived from examples of projects and SAN's mission on SAN's website.	(SAN 2023)
Sustainable Biomass Program (SBP)	<ul style="list-style-type: none"> ▪ Wood products certified by SBP are e.g. wood pellets and woodchips, used in industrial, large scale energy production. ▪ Data are also based on the ITC Standards Map. ▪ Wood as feedstock or products are not specified on ITC Standards Map. We considered forestry for wood. 	(SBP 2019; International Trade Centre 2021)
Sustainable Forestry Initiative (SFI)	<ul style="list-style-type: none"> ▪ SFI supports a growing need for products from the forest. ▪ Certification of wood products are not specified. 	(SFI 2022)
Textile Exchange	<ul style="list-style-type: none"> ▪ Data are based on Textile Exchange Global Recycled Standard, Organic Content Standard, Recycled Claim Standard. ▪ Data are also based on the ITC Standards Map. 	(Textile Exchange 2023; International Trade Centre 2021)
Together for Sustainability (TfS)	<ul style="list-style-type: none"> ▪ The chemical sector's global initiative, Together for Sustainability (TfS), can be applied in the chemical industry and beyond. ▪ No more information on the website indicating which feedstocks or products are certified. ▪ Data are based on the ITC Standards Map and estimates derived from it. ▪ Different Bio-based chemicals are not distinguished on ITC Standards Map. We have considered chemicals for all bio-based chemicals. 	(TfS 2023; International Trade Centre 2021)
Verified Carbon Standard (VCS)	<ul style="list-style-type: none"> ▪ The Verified Carbon Standard website presents the scope of the sectors. Products that belong to these sectors can potentially be certified. ▪ Data are also based on the ITC Standards Map. ▪ Wood as feedstock or products are not specified on ITC Standards Map. We considered forestry for wood. 	(VCS 2022; International Trade Centre 2021)