

WP1 | Regulations and economic policies for waste prevention and management in the Alps

**MAPPING THE STATE OF ALPINE SOLUTIONS FOR
CIRCULAR PRODUCTS**

PART 3

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INTRODUCTION

The Alpine region, extending across Austria, France, Germany, Italy, Slovenia and Switzerland, represents one of Europe's most diverse and economically dynamic territorial area, bringing together many industrial traditions with sensitive natural ecosystems. The region is also home to a strong textile and plastics manufacturing industry, which includes both traditional industries and innovative small and medium size enterprises that produce, process, and recycle textile products, due to the strong outdoor sport activities like skiing, hiking etc. The Alpine countries are facing increasing challenges related to textile and plastic waste generation, cross-border material flows, and the need for coordinated policies that combine environmental protection and industrial competitiveness.

In recent years, Alpine countries have strengthened their legislative and policy frameworks in the areas of waste and circular economy built on the R-strategies (to a greater or lesser extent, see https://www.alpine-space.eu/wp-content/uploads/2026/02/R-strategies-and-their-use-in-ASTER_V3.pdf) following European directives for most of them. These guidelines are consistent with the commitments made under the Alpine Convention and its "waste" protocol (reduce waste production at the source; prevent the environmental impacts of waste on soils, water and alpine landscapes; promote a circular economy in the region).

Despite common European objectives, there are still certain differences in the way individual countries understand and implement waste management legislation, especially in the fields of textiles and plastics. The circular economy is usually structured around the 10 R principles (Refuse, Rethink, Reduce, Reuse, Repair, Refurbish, Remanufacture, Repurpose, Recycle, and Recover). However, in the context of the outdoor sports textile industry, not all of these principles are equally relevant or applicable. For this reason, the focus in this report was placed on those R-strategies that have the greatest importance for this sector. The analysis mainly concentrates on policies that regulate the life cycle of plastic and textile materials, from design and production to use, reuse, and final processing. It allows a comparative understanding of how different countries integrate circular economy principles and R-strategies into their legislation, policies, and business practices.

This report, under ASTER Deliverable D.1.2.1, presents a policy overview of the legislative, institutional, and economic frameworks that influence waste prevention and management in the Alpine region. The report is built on the results of a questionnaire filled out by project partners and experts from Austria, France, Germany, Italy and Slovenia, in some cases with additional interviews. Although no Swiss partner is involved in the project, Switzerland is also included since it plays an important role in textile development and processing and influences material flows in the wider Alpine region. The questionnaire template is available on the [ASTER website](#).

EUROPEAN REGULATORY FRAMEWORK AND PROJECT SUPPORT

European regulatory framework

Waste management in European Union member states is strongly determined by the European regulatory framework, and especially by the Waste Framework Directive. The main texts relating to waste are presented below; they are supplemented by “circular economy” texts aimed at reducing the impact of products throughout their life cycle (including at the “waste” stage).

General approach – directives and regulations

Table 1: General European directives and regulations including references and key actions

References	Key Actions
<p>Amended framework Directive 2008/98/EC - Waste</p>	<p>General provisions:</p> <ul style="list-style-type: none"> • Hierarchy of waste management methods: prevention, preparation for reuse, recycling, other recovery and disposal • Principle of self-sufficiency and proximity • Polluter-pays principle: the original waste producer must bear the costs of waste management • Extended Producer Responsibility (EPR): the Framework Directive defines an extended producer responsibility scheme as a set of measures taken by Member States to ensure that product producers assume financial responsibility or financial and organizational responsibility for managing the “waste” phase of a product's life cycle. • Circular economy: member states must take measures to: <ul style="list-style-type: none"> ○ Support sustainable production and consumption patterns ○ Encourage the design, manufacture and use of products that are resource-efficient, durable, repairable, reusable and evolutionary in design ○ Encourage the availability of spare parts, technical information or any other means to enable product repair and reuse without compromising product repair and reuse ○ Promote the reduction of hazardous substances in materials and products • The directive sets recycling targets for municipal waste: <ul style="list-style-type: none"> ○ 2025: at least 55% by weight of municipal waste must be recycled ○ Then 60% by 2030; 65% by 2035 • Competent national authorities must draw up waste management plans and waste prevention programs

Regulation (EU) 2024/1781 - Framework for the setting of ecodesign requirements for sustainable products	<p>The regulation aims to:</p> <ul style="list-style-type: none"> • Make sustainable products the norm in the EU • Reduce the environmental impact of products throughout their life cycle • Reinforce circularity (reparability, reusability, recyclability, sustainability). Combat premature obsolescence and the destruction of unsold products
Regulation (EC) 66/2010 – EU Ecolabel	<p>Eco-label criteria are determined on the basis of scientific data, taking into account the product life cycle. The following criteria are taken into account:</p> <ul style="list-style-type: none"> • The most significant environmental impacts • Replacement of hazardous substances by safer substances • Potential for reducing environmental impact through product durability and reusability. <p>Each product family must meet specific criteria (set of specifications).</p>
Directive 1999/31/EC – Landfill of waste	<p>The directive aims to:</p> <p>Gradually reduce the landfilling of waste, especially recoverable or recyclable waste, and limit the environmental and health impacts of landfills (pollution of water, soil, air, greenhouse effect).</p> <p>The Waste Framework Directive sets a landfill target by 2025: “Member States shall ensure that the amount of municipal waste going to landfill is reduced at least by 10% of the total amount of municipal waste produced in 2015.”</p>
Regulation (EC) 1013/2006 - Shipments of waste	<p>Recalls the principles of proximity, priority to value-addition and self-sufficiency (whether at community or national level).</p> <p>Sets out the procedures applicable to waste shipments.</p>
Regulation (EC) 1907/2006 – REACH	<p>The European REACH regulation aims to make the manufacture and use of chemical substances safer by identifying, evaluating and controlling the chemical substances manufactured, imported and placed on the European market.</p>

Other resources (Soft law):

- **First Circular Economy action plan:** “Closing the Loop - An EU Action Plan for the Circular Economy” (COM(2015) 614 final): reducing waste production, maintaining the use value of products for as long as possible, reducing resource dependency...
- **Green Deal:** “The Green Pact for Europe” (COM(2019) 640 final): reducing greenhouse gas emissions by at least 55% by 2030 compared to 1990. With regard to the circular economy, the Green Deal aims to decouple economic growth from the use of natural resources.
- **Second Circular Economy action plan:** “A new Circular Economy Action Plan for a cleaner and more competitive Europe” (COM(2020) 98 final): This plan is one of the pillars of the Green Pact (Sectoral Plan).

- **Circular economy package:** “Making sustainable products the norm” (COM(2022) 140 final) (Definition of a package of concrete measures following on from the Green Pact and the Second Action Plan for the Circular Economy)

Specific approach – directives and regulations

A) Textiles:

Table 2: Specific European directives and regulations for textiles including references and key actions

References	Key Actions
Amended framework Directive 2008/98/EC - Waste	<p>Introduced specific measures for textiles. Aims:</p> <ul style="list-style-type: none"> • Support reuse and life extension, including repair, refurbishment, improvement, remanufacturing and upcycling involving a change in certain functions of the original product. • Mandatory separate collection of textiles (January 1, 2025) • Sorting: separately collected textiles are subjected to sorting operations (treatment in accordance with the waste hierarchy: reuse and preparation for reuse come first; item-by-item sorting). • Creation of a textiles EPR channel (deadline April 17, 2028) / Register of producers / Modulation of financial contribution according to producers' practices (target ephemeral fashion). • Separately collected textiles are considered as waste from the moment they are collected / Exit from waste status for reuse (art. 6 waste framework directive). <p>Transposition of directive 2025/1892 no later than June 17, 2027.</p>
Regulation (EU) 2024/1781 - Framework for the setting of ecodesign requirements for sustainable products	<p><u>Specific requirements</u> for textiles (clothing, footwear) will be defined by delegated acts (included in the first working group).</p> <p>Planned requirements:</p> <ul style="list-style-type: none"> • Physical durability: resistance to pilling, fading and wear • Recyclability: single-fiber materials, absence of substances that interfere with recycling • Recycled content: minimum percentage of recycled fibers • Care: information on washing, drying, ironing • Ban on destruction of unsold products (2026 for large companies, 2030 for SMEs) • Mandatory publication of the number and weight of unsold products destroyed. <p><u>Digital passport:</u> Each product will have to be accompanied by a digital passport: this will contain data on composition, durability, substances of concern, and repair and recycling options.</p>
Regulation (EC) 1907/2006 – REACH	<p>REACH restricts or bans the use of harmful substances in the manufacture of textiles (Restrictions on the use of hazardous substances in Annex XVII).</p>

	Restrictions include undecafluorohexanoic acid (PFHxA), its salts and PFHxA-related substances used to make textiles water-, stain- or grease-repellent; azo dyes, phthalates, formaldehyde, etc.
EU Ecolabel	<i>Textile products: Decision 2014/350/EU (Valid 12/31/2025)</i>

Other resources (Soft law):

- **European Strategy for Sustainable and Circular Textiles** (COM(2022) 141 final). The main actions listed in the strategy are:
 - o Introduce mandatory eco-design requirements;
 - o Put an end to the destruction of unsold or returned textiles;
 - o Fight microplastic pollution;
 - o Introduce information requirements and a digital product passport;
 - o Restrict ecological claims to genuinely sustainable textiles;
 - o Harmonize EU rules on extended producer responsibility for textiles, with ecological modulation of fees.

- Announced by the European Strategy for Sustainable and Circular Textiles, the “Transition Pathway for the Textile Ecosystem” (June 6, 2023) presents over 50 concrete actions to support the ecological, digital and social transition of the European textile sector. The document specifies:

"Innovative, sustainable, circular and high-quality products remain the most promising segments for the ecosystem, and many stakeholders defined circular and sustainable products as market/export opportunities for the future competitiveness of the Union's textile ecosystem. Some stakeholders also recognized that recycled and renewable fibers represented a new market in which the Union could become a leader. It could also open up new business opportunities and strengthen the sector's resilience. Nevertheless, stakeholders generally consider that the textile ecosystem is lagging behind when it comes to digitization, and that greater efforts and investment need to be devoted to research, technological development, innovation and skills development".

B) Plastics:

At European level, apart from the Waste Framework Directive (and the provisions relating to single-use packaging and plastics in particular), the main measures applying to plastics are to be found in the “eco-design” regulation.

Table 3: Specific European directives and regulations for plastics including references and key actions

References	Key Actions
Regulation (EU) 2024/1781 - Framework for the setting of ecodesign requirements for sustainable products	The regulation applies to all physical goods, including components and intermediate products. Plastic products are therefore fully covered by the regulation. Delegated acts will define the requirements that will apply to plastic products.

Project support

The implementation of European legislation is supported by European funding. In the case of textiles, the “Transition Pathway for the Textile Ecosystem” identified the following support schemes:

- **Action 43:** Communicate and increase awareness on funding opportunities for the textiles ecosystem such as Horizon Europe, Digital Europe, LIFE, ESF+, InvestEU, Innovation Fund, the Single Market Programme, cohesion policy fund and Recovery and Resilience Facility, for example through the transition pathway stakeholder support platform.
- **Action 44:** Explore support possibilities for R&I on textiles under Horizon Europe, including a possible partnership. Build participation and cooperation with relevant European Partnerships and initiatives under Horizon Europe and other EU funding programmes.

These funding schemes also make it possible to support projects of interest to plastics.

The Horizon Europe 2021-2027 program (Regulation (EU) 2021/695) supports research and innovation for ecological, digital and industrial transition. The program is particularly well suited to supporting transnational projects in the field of the circular economy (funding rate of 100% for R&D and 70% for innovation projects (companies)).

The following table presents a list of projects on the “textiles” and/or “plastics” themes currently supported by the Horizon Europe program. This list is not intended to be exhaustive.

Table 4: Horizon projects linked to textiles and/or plastics

Project	Objectives
TRUSTex (2024 – 2027)	Develop innovative extended producer responsibility (EPR) schemes to improve the circularity of the textile sector (including digital traceability, communication and consumer awareness) Homepage: TRUSTex Project – Advancing Textiles EU Producer Responsibility Through Circular Economy Principles and Innovation

tExtended (2023 – 2026)	<p>Draw up a master plan for the implementation of a circular textile ecosystem involving efficient recovery, prolonged reuse, recovery and recycling of waste and various materials from end-of-life textiles.</p> <p>Homepage: Home Page textended.eu</p>
CISUTAC (2022 – 2026)	<p>Improve textile circularity in Europe through innovative value chains for reuse, repair and recycling. Three pilots are planned: disassembly and repair, sorting for reuse/recycling, and fiber-to-fiber recycling for circular garments.</p> <p>Homepage: CISUTAC</p>
BioFibreLoop (2024 -2027)	<p>Develop recyclable outdoor, sports and work clothing, made from renewable biobased materials (lignin, cellulose, polylactic acid), with biomimetic functionalities (water-repellent, self-cleaning, antibacterial). Deliver a recyclable jacket as the final product.</p> <p>Homepage: Home - BioFibreLoop</p>
INCIRCULAR (2022 -2026)	<p>Produce 100% recycled and recyclable bioplastics.</p> <p>Homepage: INCIRCULAR - INtegrating Cybernated Innovation to Raise the Scale of Circular Units Looping Allied Regions</p>
WhiteCycle (2023 – 2027)	<p>Process and recycle complex textile-based plastic waste.</p> <p>Homepage: European project to process and recycle PET from complex waste White Cycle</p>
PLASTICE (2022 -2026)	<p>Develop 4 innovative technologies for recycling plastic waste.</p> <p>Homepage: Homepage - PLASTICE Project</p>

NATIONAL REGULATORY FRAMEWORK

European directives on waste or products are technical texts that leave little place for innovation on the part of States: although directives must be transposed into national law, transpositions remain very faithful to the texts of the directives. Regulations, on the other hand, are directly applicable, and States are obliged to apply them as they stand.

Against this backdrop, the focus on national regulations is limited to the provisions relating to textiles, plastics and mountain outdoor sporting goods, which are listed in the table below:

Table 5: National regulatory frameworks

National state	Description
<p>Austria</p>	<p>Federal waste management act amended / Abfallwirtschaftsgesetz (2002) transposes the Waste Framework Directive.</p> <ul style="list-style-type: none"> • Textiles: mandatory separate collection of textile waste under the Waste Directive (January 1, 2025). EPR for textiles in preparation • Plastics: no specific provisions for the product categories in the study. • No specific provisions for mountain outdoor products (no EPR for leisure and sports products). <p>Waste planning: Austrian waste management plan / Abfallwirtschaftsplan Österreich.</p>
<p>France</p>	<p>Various texts contribute to the transposition of the Waste Framework Directive in France. In 2020, the law on the fight against waste and the circular economy creates new EPR channels to support its strategy.</p> <p>Mountain outdoor products will be included under:</p> <ul style="list-style-type: none"> • EPR for clothing, household linen and footwear • EPR Sport and Leisure Articles (SLA): covers, ski boots, snowshoes, ice axes, crampons, poles, ropes, carabiners, backpacks, tents, etc. <p>Since 2025, professional textiles also need to be dealt with, which concerns professional mountain clothing for example</p> <p>Manufacturers pay an eco-contribution. The eco-contribution is used to finance: the collection of used products (via collection points, distributors, local authorities); repair (repair bonus, repairer accreditation), re-use (support for organisations from the social and solidarity economy) recycling of non-reusable products and public awareness-raising campaigns on repair and sorting.</p> <p>EPRs are implemented by government-approved eco-organizations. Their activities are governed by a set of specifications.</p> <ul style="list-style-type: none"> • Sport and Leisure Articles: Order of October 27, 2021 laying down the specifications for eco-organizations and individual systems in the EPR sector SLA (Eco-organization: Ecologic) • Textiles: Order of November 23, 2022 laying down the specifications for eco-organizations and individual systems in the EPR sector for textiles, footwear and household linen. (Eco-organization: Re_fashion) <p>Textile objectives:</p> <ul style="list-style-type: none"> • Collection: 50% of quantities put on the market • Material recycling (reuse and recycling): 95%

	<ul style="list-style-type: none"> Disposal: maximum 2% <p>Plastics: no specific provisions for the product categories in the study</p> <p>Waste planning: National Waste Management Plan and National Waste Prevention Plan</p> <p>Dedicated platform:</p> <p>ERP: https://filieres-rep.ademe.fr/filieres-rep</p> <p>General platform:</p> <p>Legislative and regulatory texts: https://www.legifrance.gouv.fr/</p>
Germany	<p>Circular economy act amended/ Kreislaufwirtschaftsgesetz (2012) transposes the Waste Framework Directive.</p> <ul style="list-style-type: none"> Textiles: mandatory separate collection of textile waste under the Waste Directive (January 1, 2025). EPR for textiles in preparation Plastics: no specific provisions for the product categories in the study No specific provisions for mountain outdoor products (no EPR for leisure and sports products) <p>Waste planning: The waste management plan is integrated into the law on the circular economy.</p>
Italy	<p>The Italian national reference regulation is Legislative Decree (D.Lgs) 152/06 (2006), which incorporates several European directives, subsequently amended with Legislative Decree 116/2020.</p> <ul style="list-style-type: none"> Textiles: mandatory separate collection of textile waste under the Waste Directive (January 1, 2022). EPR for textiles in preparation. (Draft Decree) Plastics: no specific provisions for the product categories in the study. No specific provisions for mountain outdoor products (No EPR for leisure and sports products). <p>Waste planning: National Waste Management Plan / Piano Nazionale per la Gestione dei Rifiuti.</p>
Slovenia	<p>The Environmental Protection Act (ZVO-2) (2022) / Zakon o varstvu okolja is the main text transposing the Waste Framework Directive. It is supplemented by regulations on waste management.</p> <ul style="list-style-type: none"> Textiles: EPR under definition Plastics: no specific provisions on the product categories in the study No specific provisions for mountain outdoor items (no EPR for leisure and sports items) <p>Waste planning: National Waste Management and Resource Plan.</p>

<p>Switzerland</p>	<p>Switzerland, although outside the European Union, appears to be strongly influenced by the policies of its neighbouring states. The circular economy is now integrated into several federal laws: the most important of which were revised as part of parliamentary initiative 20.433 “Developing the circular economy in Switzerland”, adopted in 2024 and which entered into force in January 2025.</p> <p>The Law on environmental protection is the legislative text that incorporates the main measures in the area of the circular economy, with the primacy of recycling over incineration; the promotion of eco-design, reuse and recovery of products and material Waste management falls under the ordinance on the limitation and disposal of waste.</p> <p>This text contains the essential measures applicable to outdoor products, although not specifically. It should be noted that textiles could soon be covered by a system based on the principle of extended producer responsibility while plastic waste could be subject to separate collection (which goes beyond packaging waste) depending on the materials it contains (PET, PE, PP, PS, PVC etc.). These provisions are still under discussion.</p>
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To date, having created an EPR for sports and leisure articles, France appears to be the most advanced country in terms of regulations for managing waste from mountain outdoor activities. However, the French system is still in its infancy, and its performance remains to be confirmed (collection, recovery in particular). With regard to textile management, under European impetus, textile EPRs are currently being created (except for France, which already has an EPR for textiles).

COMPETENCES ON THE REGIONAL LEVEL ON WASTE AND ECONOMIC DEVELOPMENT

At local level, the Regions (with the exception of Slovenia) are responsible for making national planning more operational: this dual level of planning should make it easier for States to achieve the objectives set at European level by the Waste Framework Directive and related texts (local targets for waste prevention, recycling and recovery; specific planning for certain types of waste...).

Regional planning:

Table 6: Regional competences on waste and economic development

Region	Description
Tyrol (Federal State)	<p>In the questionnaire there was no data reported on the presence of specific features associated with the Alpine region or sectors (textiles, plastics, mountain outdoor goods). However, their regional waste-management policy goes beyond federal law in how plastic waste is collected and sorted at the local level.</p> <p>In Austria, the Waste Management Act (AWG 2002) establishes the framework for waste collection and recycling. Responsibility for regional implementation lies with the federal states. In Tyrol, the Tyrolean Waste Management Concept, that is based on the Tyrolean Waste Management Act, regulates separate collection, specifies locations for treatment plants and includes measures for waste prevention and recycling.</p>
Auvergne-Rhône-Alpes (Region)	<p>The Schéma régional d'aménagement, de développement durable et d'égalité des territoires includes a "waste - circular economy" section.</p> <ul style="list-style-type: none"> • No specific features associated with the Alpine region • A focus on textiles with objectives: <ul style="list-style-type: none"> ○ Expand the network of selective collection points ○ Achieve a collection level of 6kg/capita/year by 2031 (4kg/capita/year by 2023) ○ Recycle 2.7 kg/capita/year of additional TLC by 2031 <p>Platform dedicated to the circular economy: https://www.eclaira.org/</p>
Bavaria (Federal State)	<p>Bavarian Waste Management Plan / Abfallwirtschaftsplan Bayern</p> <p>No data reported on the presence of specific features associated with the Alpine region or with specific sectors (textiles, plastics, mountain outdoor items).</p>
Piedmont – Liguria (Regions)	<p>Piano Regionale di Gestione dei Rifiuti</p> <p>No data reported on the presence of specific features associated with the Alpine region or sectors (textiles, plastics, mountain outdoor goods).</p>
Slovenia (State)	<p>National waste and resource management program (no plan at the local level)</p> <p>No data reported on the presence of specific features associated with the Alpine region or sectors (textiles, plastics, mountain outdoor goods).</p>
Swiss cantons	<p>Swiss cantons play a central role in waste management since they must translate the general principles set by law into cantonal waste management</p>

	<p>plans, which are operational, strategic and mandatory documents. The plans do not include specific measures for mountain outdoor activities.</p> <p>Regarding textiles, the plans are based on general obligations: the cantons must ensure that textiles are collected separately and are subject to material recovery “as much as possible”, but without a quantified target. Switzerland collects 60 000 t of textile per year (7 kg per inhabitant). -</p>
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In Europe, municipalities are responsible for the operational level, which involves raising public awareness and managing local waste. Depending on the characteristics of their territory, municipalities may develop local initiatives aimed specifically at taking charge of certain waste flows: for mountain outdoor products, for example, end-of-season collections may be initiated in the resorts by the municipalities.

Brands/stores (Salomon Index, Technica /Germany, Recycle Your Boots /Austria etc.) or associations may also be behind these initiatives. The question of how to recycle the collected items remains an issue, given their complex composition.

The regional level, beyond its planning role, can support projects with its own resources (economic development competence) or by mobilizing European funding. In this respect, the ERDF is a tool that can be used to finance circular economy projects.

REGIONAL LEVEL BEST PRACTICES

The analysis at regional level revealed some examples of good practices and regional initiatives in the countries inside the Alpine region that complement or go beyond national legislation. Across the Alpine region, these examples show that while most waste management legislation is determined at national level, regional and local initiatives play a big role in implementing the waste management and circular economy principles through context-specific actions, particularly in territories concerned by tourism, mountainous geography, and limited logistics infrastructure.

Table 7: Best practices at the regional level

Best practice region	Description
Austria – Tyrol region	<p>A success story in Tyrol is its regional waste separation and collection system, which is an example of strong regional waste management policies. Austria’s waste management is governed by national legislation (Abfallwirtschaftsgesetz AWG 2002), which implements the EU waste hierarchy and prioritises prevention, reuse, recycling and recovery.</p> <p>In Tyrol, national waste legislation is implemented through provincial and municipal systems designed for local conditions, such as dispersed settlements and tourism patterns. Organisations and initiatives that promote reuse and repair contribute to extending product lifetimes and supporting reuse strategies in the region.</p> <p>Although detailed regional data on textile reuse are limited, national reuse networks such as ReUse Austria, which involves social economy actors, operate widely across Austria. These networks collect and prepare large volumes of textiles for reuse and work closely with municipal partners.</p>
Slovenia (Gorenjska and Zgornja Savinska region)	<p>Slovenia is a unitary state without administrative or legal provinces. As a result, most legislation, including waste management regulations, is established at the national level. There are no regional laws or regulations that significantly differ from national legislation. Slovenian legislation does not allow for substantial regional differences in waste management. Any major differences between regions would require separate regional legislation, which does not exist. The only variations that occur at the municipal level are minor and relate mainly to the organisation of municipal services. Although the Alpine regions are subject to specific environmental guidelines under international conventions, these guidelines are not legally binding through laws. Their implementation depends on individual municipalities and must remain fully aligned with national regulations.</p> <p>The management of textile and plastic waste in Slovenia’s Alpine regions differs from that in other parts of the country primarily due to natural and geographical challenges rather than legal differences. Alpine regions such as Gorenjska and Zgornja Savinska are characterised by dispersed settlements and small communities, which require solutions and measures that are adapted to address their specific characteristics. This geographical distribution makes it difficult for local municipal services to organise waste collection and</p>

	<p>management, requiring them to adapt their operations in these areas to take into account the accessibility and capacity of the infrastructure.</p> <p>Tourism is one of the leading activities in these regions, attracting large numbers of domestic and foreign tourists throughout the year. Therefore, these municipalities are particularly aware of the importance of promoting specific sustainable practices through local providers and their residents in order to minimise the amount of waste generated by tourism. These measures include the promotion of local initiatives such as eco hotels that actively reduce plastic and textile waste, as well as awareness-raising activities in many tourist destinations to inform tourists about the importance of waste reduction. Such measures include clearly labelled bins for separate collection, the promotion of sustainable products, and the reduction of single-use plastics.</p> <p>Good practices are also strongly promoted through cooperation between municipalities, NGOs, and businesses to manage waste more efficiently. These approaches include the exchange of knowledge and experience, which helps to develop best practices. There are also many funding and support programmes, as well as state and European grants available for projects addressing waste management in the Alpine regions, encouraging the development and implementation of innovative solutions to reduce waste.</p>
<p>Italy (Piedmont and Liguria)</p>	<p>In Italy, Regions have the constitutional power to establish environmental protection standards that are higher than those set at national level. This principle has been recognised by the Council of State, notably through decree no. 4032 of 7 August 2019 and ordinance no. 4274 of 30 August 2019, in line with the jurisprudence of the Constitutional Court. Owing to the cross-cutting nature of environmental matters, Regions may adopt stricter environmental provisions while exercising their legislative powers. This legal basis has enabled several Regions to introduce restrictive measures on plastics even before the national transposition of Directive (EU) 2019/904.</p> <p>At the municipal level, some local authorities adopted so-called “plastic free” administrative ordinances. However, these measures frequently faced legal challenges and were suspended by the Regional Administrative Tribunals (TAR). For instance, the TAR Puglia suspended a regional ordinance banning single-use plastics on beaches. On appeal, the Council of State upheld the Region’s position, recognising its competence to regulate maritime state property and considering the environmental impact to be indirect and secondary.</p> <p>In Piedmont, regional planning acts identify door-to-door waste collection as the most effective system for achieving high-quality separation and minimising residual waste. Regional plans set specific collection targets to contribute to the national recycling rate of 65%, including a target for textile waste collection of 5 kg per capita per year at the level of Consorzio Area Vasta by 2035. Textile collection is mainly organised through containers placed on public land or in waste collection centres.</p> <p>To support Alpine regions in achieving these targets, public institutions have launched calls for tender to finance improvements in door-to-door</p>

	<p>collection systems, home composting and waste collection centres. Apart from awareness campaigns aimed at tourists in areas of high natural value, no specific differentiation in waste management practices is reported.</p>
<p>France (Auvergne Rhône-Alpes region)</p>	<p>At the regional and local level in France, certain regulatory and operational aspects of waste management go beyond national legislation, particularly concerning household and professional waste.</p> <p>For household waste, sorting instructions for plastics and textiles may vary depending on local economic networks or public initiatives. Since January 1st, 2024, all plastics from household packaging must be sorted throughout France, ensuring national harmonization for plastic waste. In contrast, textile sorting instructions remain adaptable. These adaptations are coordinated by Refashion, which aims to reach a collection target of 60% of the annual tonnage of textile waste.</p> <p>Regarding professional waste and waste from economic activities, operators of landfilling plants are subject to obligations that limit the proportions by mass of materials that should be sorted at source. These obligations reinforce the implementation of source-sorting requirements at local and regional levels.</p> <p>In addition, French Regions have integrated objectives related to the R strategies (reduce, reuse, recycle, etc.) into their regional planning documents that provide a framework at the regional scale, addressing waste management alongside other policy areas such as economic development, research, mobility, and biodiversity. They also serve as a basis for developing regional textile industries, notably those based on outdoor textile and plastic material deposits.</p> <p>In the Alpine departments of Savoie, Haute-Savoie, and Isère, household textile collection reached 12,600 tonnes in 2023. Sorting habits among the population vary across these areas, ranging from 4 to 5 kg per inhabitant in Haute-Savoie and Isère to more than 6 kg per inhabitant in Savoie. Two sorting platforms located in Savoie and Isère manage most of the collected textile deposits. The outputs are distributed between reuse (5%), recycling (30%), and export (60%). This organization reflects regional adaptations to geographical constraints and available infrastructure.</p>
<p>Germany</p>	<p>In Germany, waste management falls under concurrent legislation in accordance with Article 74, paragraph 1, number 24 of the Basic Law (GG). This means that the federal states may only legislate in this area if there is no existing national regulation. While Germany does not have specific national or regional waste management policies focused exclusively to Alpine regions, mountain-specific practices are supported within international frameworks.</p> <p>However, there are some specific mountain-related problems that affect waste management in Alpine areas. According to the Alpine Convention, tourism creates extra pressure on waste management systems in some Alpine regions. A high number of tourists leads to more food waste and material waste. Waste amounts also change strongly during the year, depending on the season. These effects are</p>

	<p>especially difficult for small municipalities where the number of tourists is much higher than the number of permanent residents.</p> <p>Another specific problem concerns remote mountain huts, which are often managed by Alpine Clubs. Because of their isolated locations, these huts are usually not connected to municipal waste collection systems or sewage networks. As a result, waste and wastewater management is more difficult and costly.</p> <p>One way they can address these challenges is under the Alpine Convention, where the Contracting Parties support measures to improve the efficient use of resources and the careful use of water, energy, materials, land, and soil. These measures include reducing waste and using resources in line with circular economy principles. They also promote the use of locally available renewable resources, while taking into account the full life cycle of materials. According to the Carpathian Convention, in some Alpine regions waste from mountain refuges can only be removed by air transport. These systems are often used in the European Alps to transport waste from remote areas where normal waste collection is not possible. The Carpathian Convention also stresses the need to develop waste collection, reuse, and disposal systems that are adapted to the specific terrain, geology, and climate of Alpine regions, with a strong focus on waste prevention.</p>
<p>Switzerland</p>	<p>Pact'Matière is the circular economy component of the broader PACTE program (Concerted Action Plan for Ecological Transition) under Interreg France–Switzerland.</p> <p>It is the first transboundary action plan dedicated to circular economy in the Grand Genève area, acting as a bridge between national policies (France & Switzerland) and local initiatives. Partnership involves Canton of Geneva (Swiss leader), Canton of Vaud, Région of Nyon, City of Geneva; Région Auvergne-Rhône-Alpes (French Leader), Département de l'Ain, Département de Haute-Savoie and Pôle Métropolitain du Genevois Français.</p> <p>The main goal of Pact'matière is to reduce the material footprint of Grand Genève by a factor of 5 (from 20 tons per inhabitant/year to 4 tons by 2050). It also aims at aligning with the Grand Genève Transition Charter and respect planetary boundaries and overall promoting circular production and consumption, local value creation, and resource efficiency.</p> <p>The action plan includes 34 actions grouped into 4 strategic domains + 1 crosscutting domain; one of them is Consumer goods (including textiles). Cross-cutting measures are also included, such as training, financing and communication.</p> <p>8 priority actions (edition 2025) have been set to kick-start implementation, including Circular criteria in public procurement, valorisation of textile flows, territorial fund for circular transition and facilitation of cross-border resource flows.</p> <p>Expected impacts include relocating 10% of imports and create around 10k jobs. Environmental (material) footprint is expected to be reduced by 80%.</p>

	<p><u>Sustainable Textiles Switzerland 2030 (STS 2030)</u></p> <p>Started in 2022, STS 2030 is a multi-stakeholder program with the mission to contribute significantly to the achievement of the United Nations' Sustainable Development Goals (SDGs) in the Swiss textile and clothing sector along the entire value chain, including life cycle and transparency. It involves actors from the Swiss textile and clothing sector. It includes four targets, among them Promotion of innovative business models toward a circular economy and Transparency to ensure that sustainable purchasing decisions can be made. Commitments can include design at least 30% of their products for circularity, in order for them to circulate in a functioning cycle or reuse at least 50% of textile materials in new products.</p>
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CONCLUSION

The analysis indicates that waste management in the Alpine regions is largely based on the European regulatory framework, particularly the Waste directive and the developing regulations on circular economy and eco-design. The mentioned regulations define common objectives such as waste prevention, separate collection, extended product responsibility and improved recyclability and sustainability of textile and plastic products. On the national level, Alpine regions implement European directives coherently, leaving little room for deviation, which in return results to national legislative frameworks for textiles and plastics being largely aligned, with the exception of mandatory separate collection of textiles and the gradual introduction of extended producer responsibility schemes. However, we can see that there are still significant differences in the level of implementation and maturity of these instruments, especially in countries where the textile industry is not so well developed.

At the regional level, national goals are transferred and adapted to local conditions. The regions themselves are largely responsible for waste management planning and, in cooperation with municipalities, ensure the operational implementation of measures for collection, separation, and awareness raising among the local population and tourists. Findings show that, despite the absence of legal frameworks specific to the Alpine region, in most Alpine regions local authorities adapt waste management practices to the geographical constraints, tourist pressure, and scattered settlements that are characteristic of mountain areas. These measures include adapted waste collection systems, the organisation of end-of-season waste collection campaigns in tourist centres, and targeted communication initiatives aimed to raise awareness among residents and tourists about waste reduction in the Alps.

Good practices identified in the Alpine region demonstrate how regional and local initiatives can add value to these areas, especially when public authorities, businesses, social economy actors, and non-governmental organisations collaborate. Examples include well-established waste separation systems, reuse and repair networks, door-to-door waste collection systems, and regional planning instruments that incorporate circular economy objectives.

Nevertheless, Alpine regions still face a number of challenges in dealing with textile and plastic waste, such as the complex composition of textile and plastic products, low quantities of highly varied products, limited recycling options for certain types of waste, and uneven waste collection and treatment. These challenges might be addressed in the future as Europe plans to impose additional measures, including:

- A major part of the EU's plastics strategy has focused on packaging waste. Under Regulation (EU) 2024/40 on packaging and packaging waste, the objective is for all packaging to be recyclable by 2030.
- Recent amendments to the Waste Framework Directive placed stronger emphasis on textile waste and, unsurprisingly, introduced extended producer responsibility (EPR) schemes. Beyond EPR, the amendments also addressed textile waste management more broadly, including improved collection systems and the integration of social enterprises, which have so far been largely overlooked in EU waste management practices.
- In parallel, the Commission is establishing new rules to define when waste materials can re-enter the market as secondary raw materials, particularly through end-of-waste criteria for plastics. By setting clear conditions, the EU aims to strengthen the recycling

industry, reduce dependence on virgin resources, and generally minimise environmental impacts.

- The Commission has also announced new measures to address rising imports of low-cost virgin plastics into the EU. Its plan calls for urgent action by Member States to support the recycling sector, which is struggling with high energy costs, low virgin-plastic prices, and weak demand for recycled materials. These efforts include creating a single market for recycled plastics through EU-wide end-of-waste criteria.
- The Commission has yet to publish detailed guidelines for the implementation of the Packaging and Packaging Waste Regulation.

Reference to other Deliverables

This work package consists, beside this report, of six other reports that provide additional information and deeper insights into the ASTER project:

- **Input paper on R-strategies | Definitions and Understanding. A guideline through the Activities:**
https://www.alpine-space.eu/wp-content/uploads/2026/02/R-strategies-and-their-use-in-ASTER_V3.pdf
- **Deliverable 1.1.1 | Mapping circular & textile actors in the Alps:**
<https://www.alpine-space.eu/wp-content/uploads/2026/04/D111-Mapping-circular-and-textile-actors-in-the-Alps.pdf>
- **Deliverable 1.1.2 | Mapping economic flows & gaps in the Alps:**
<https://www.alpine-space.eu/wp-content/uploads/2026/04/D112-Mapping-economic-flows-and-gaps-in-the-Alps.pdf>
- **Deliverable 1.2.2 | Mapping institutional dynamics in the Alps:**
<https://www.alpine-space.eu/wp-content/uploads/2026/04/D122-Mapping-institutional-dynamics-in-the-Alps.pdf>
- **Deliverable 1.3.1 | Methods – R potential, waste generation and waste management of outdoor products in the Alpine region:**
https://www.alpine-space.eu/wp-content/uploads/2026/05/D131-Methods_R-potential-waste-generation-and-waste-management.pdf
- **Deliverable 1.3.2 | R-potential, waste generation and waste management of outdoor products in the Alpine region:**
<https://www.alpine-space.eu/wp-content/uploads/2026/05/D132-R-potential-waste-generation-and-waste-management-of-outdoor-products.pdf>

ANNEX

QUESTIONS FOR WP1/1.2: Mapping of alpine regulations and economic policies for waste management

Here is a proposal of systematic and concrete questions that could be asked to project partners from **Austria, Slovenia, France, Italy and Germany** regarding their legislation in relation to the **5R (refuse, reduce, reuse, recycle, repurpose)** phases, and the inclusion of good business practices. We will also include Switzerland in the WP; although they are not a project partner, we recognise that they present a very prominent role in the textile industry of the Alpine region.

The questions are designed to allow a detailed comparison and overview between Alpine countries to define good practices in legislation and regulations accompanying lifecycle management of plastic and textile materials and products and waste.

How we understand lifecycle and waste management in the 5R:

- Design (refuse, repair, reduce)
- Use (repair and refurbish)
- Waste (remanufacture, repurpose, recycle)

The questions should be answered detailing the different components of the 5R, when possible.

1. Legislation in relation to the 5R phases

1.1. National legislation

- How does your country address the different phases of the 5Rs in your legislation?
 - What specific laws or regulations cover refuse, reduce, reuse, recycle and repurpose?
- Do you have legislative measures that ban or restrict certain plastic or textile materials or products (such as oxy plastic)?
 - What are the penalties or sanctions for non-compliance with these restrictions?
- Does your country enforce EPR (Extendend Producer Responsibility) on textiles?
- Does your country enforce EPR (Extendend Producer Responsibility) on certain plastic products?
- Does your legislation go beyond EU regulations?
- Are there specific platforms or tools that allow access to all legislation in force?
 - Is there a comprehensive access point to legislation on plastic and textile waste management?
 - Is there a comprehensive access point to legislation on lifecycle management plastic and textile products?

1.2. Regional/local level

- Are there any regional or local regulations that go beyond your national legislation?
- How does the management of textile and plastic waste differ in the Alpine regions compared to other parts of your country?
 - Do you have specific policies tailored to the Alpine regions, addressing specific challenges such as tourism, natural constraints and geographical dispersion?
- How are business practices in the Alpine regions integrated into national waste reduction strategies?
 - Do you have examples of how local entrepreneurs or initiatives in the Alpine regions influence national policies?

2. Integrating good business practices into the regulatory framework

- Does your regulatory framework contain examples of good business practices that are in line with legislation and strategies for textile and plastic waste management?
 - Are these examples also available to private companies and NGOs?
- How do you integrate successful business practices into legislative initiatives?
 - Are there specific programmes to encourage innovative companies or initiatives in the field of textile and plastic waste management that follow the 5Rs?
- Which private sector business models or solutions are identified as examples of good practice in your country?
 - Can you give some successful examples where companies are making an effective contribution to waste reduction in the Alpine regions?

3. Public-private cooperation in waste management

- What is the cooperation between the public sector (municipalities, government) and private companies in your country in implementing the 5Rs for textile and plastic waste?
 - Are specific public-private partnerships in place to improve recycling or re-use?
- Are there any incentives for companies developing innovative solutions to reduce waste or recycle textiles and plastics?
 - What are these incentives and how are they accessible to small and medium-sized enterprises (SMEs)?
 - Are there tax breaks or subsidies for companies that follow the principles of the circular economy?

4. Financing and economic policies

- How does your country finance projects supporting the 5R phases in the Alpine regions?
 - Are there specific financial funds to support initiatives focusing on textile and plastic waste management?
 - What economic policies and strategies do you have in place to promote the reduction of textile and plastic waste in the Alpine regions?
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5. Monitoring and evaluating the performance of the 5R phases

- How do you monitor the success of the 5Rs in your country? What indicators do you use?
- Do you have specific indicators at regional/local level?



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