Life HAproWINE
Integrated waste management and life cycle assessment in the wine industry. From waste to high-value products.

Strategic Document for the Environmental Sustainability of the Wine Sector in Castilla y León
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1. INTRODUCTION

This “Strategic Document for the Environmental Sustainability of Wine Sector in Castilla y León” is one of the main outcomes of the Life HAproWINE project developed by Fundación Patrimonio Natural de Castilla y León, Centro Tecnológico de Miranda de Ebro, UNESCO Chair in Life Cycle and Climate Change and PE International, with the financial support of the European Union.

This document is the result of intense discussions and valuable contributions of the Stakeholders Advisory Committee constituted by the main agents of the wine sector: Designations of Origin, wineries, wine-growers, technological centres, environmental and energetic consultancies as well as companies from the distribution sector.

The aim of this document is to gather the main concerns and recommendations from the sector which are considered necessary in order to guarantee its environmental sustainability by understanding that preservation and improvement of natural resources are basic conditions to make this sector competitive.

Waste, water and energy management are the principal environmental determinants for the activity in vineyards and wineries, requiring special attention in the whole life cycle of the wine.

However the wine sector, as the whole agri-food sector, also faces new environmental challenges that are basically related with the adaptation to climate change and biodiversity preservation.

This Strategic Document is intended to focus the attention on the main environmental issues that the wine-growing sector must target and to propose for solutions on guaranteeing environmental sustainability as an essential part of product quality, as well as the competitiveness of exploitations and companies within the sector.
2. LIFE HAPROWINE PROJECT

The LIFE HAProwine project (co-financed by the European Union) was conceived to contribute to a sustainable development in the wine sector in Castilla y León. In order to achieve its purpose, some specific objectives were established, such as drawing up a Strategic Document that can be used as a guideline for the sector and every party implied in order to get a position at the forefront in the international market within a framework of sustainability.

Some other objectives that are strongly linked to the previously mentioned are:

- To foster a reasonable and sustainable use of water, land and other natural resources, focussing on their life cycle.
- To promote prevention, recovering and recycling of waste generated by the wine sector.
- To encourage the supply and demand of products with lower environmental cost during their life cycle.
- To identify and boost the synthesis of high added value compounds that can be obtained from different waste fractions.

All the activities developed within the project framework, as well as the documents and the project outcomes are available for free enquiry and downloadable at www.haprowine.eu.

Figure 1. LIFE HAProwine web page
2.1. Development of the Strategic Document

This Strategic Document was developed by following a working plan explained in Figure 2. In the first place, it was made a diagnosis of the situation of the wine sector in Castilla y León, taking into account the results of several work packages developed within the LIFE HAproWINE project. Afterwards, a working group was set up, constituted by the members of the advisory committee and other stakeholders. Once the working group was established, a SWOT analysis of the sector was developed, the strategic objectives were defined and the strategic lines of action were identified. Finally, as a result of the previous stages, the present document was developed and it will be presented in different forums, looking for synergies with other regional initiatives.

![Diagram of the Working Plan for the Development of the Strategic Document](image-url)
Diagnosis of the Situation of the Wine Sector in Castilla y León

A thorough diagnosis of the situation of the wine sector in Castilla y León has been carried out within the framework of the LIFE HAproWINE project; all from a technical, environmental, economic and social point of view. As a result of this diagnosis, several documents have been developed. All these documents are available at the project’s web page (www.haprowine.eu) and include a technical and environmental description, an economic and social research and a review about the waste generation and management by the wine sector in Castilla y León.

Constitution of the Working Group

At an early stage of the LIFE HAproWINE project one of the top priority tasks was to identify the parties related to the wine life cycle in Castilla y León in order to inform them about the idea and objectives of the project and ask for their cooperation. This cooperation resulted in the constitution of a multidisciplinary advisory committee formed by different agents in the wine value chain and other institutions and companies interested in the project that voluntarily contributed with their knowledge and work to the final development of the project. The first meeting took place on 14th July 2010 and there have been many working sessions since then.

As it is an open group, new team members are being included from its constitution onwards.

One of the tasks the advisory committee has worked on very actively, was the identification and development of the necessary information through working groups to develop this document. Many other entities have joined them contributing, with their knowledge and experience, at this stage of the project. A list of the entities included in these groups can be found in the annex.

Figure 3. Stakeholders Advisory Committee working group (Valladolid, 18th April 2013)
Development of the SWOT Analysis

As part of the preparation tasks of this document a SWOT analysis was made of weaknesses and strengths of the sector facing the challenge of sustainable development, as well as of threats and opportunities coming from the background where this sector develops its activity.

Based on previous work done on the same line (Basque Government, 2011; Wine Technology Platform, 2012; Industrial Agri-food Sector Observatory of Castilla y León, 2006-2007), a series of strengths, weaknesses, opportunities and threats were determined. Those were used by the advisory committee as a starting point to identify new issues.

Thanks to this SWOT analysis, it has been possible to find out areas with greater potential for improvement, as well as the main barriers for sustainable development in the sector. The actions proposed have been focused on that information.

The SWOT matrix resulting from this stage of the process is presented in section 3.2 of this document.

Definition of the Strategic Objectives

As it has previously been explained, after the development of the SWOT analysis it has been possible to establish a number of priority areas for action where the strategic objectives aimed to achieve a wine sector that includes sustainable development in all its stages and actions are framed.

These priority areas of action are: Waste, Sustainable Management, Environmental Technologies, Oenology-Tourism-Heritage, Water and Energy and are fully explained in section 4 of this document.

Identification of the Strategic Lines of Action

The achievement of the previously mentioned objectives requires the establishment of actual measures in the identified strategic lines. At this point, the commitment of the stakeholders (administration, farmers, wine-producers and their related industries, distributors, consumers…) will be crucial to achieve the main objective: a reference for a sustainable development within the wine sector.

A working group was established in order to identify the strategic lines of action. Participants mentioned the priority areas for action and established key interventions according to their criteria and explaining their reasons with the support of worksheets that were designed and distributed for that purpose.
Agreed development of the Strategic Document

To prepare this document a comprehensive public participation programme was implemented. All the stakeholders involved in the wine sector in Castilla y León, as well as other stakeholders that develop their activity outside the region, were invited to join in.

A first meeting was held on 18th April 2013, working on the development of the SWOT analysis and the establishment of strategic lines for action along with measures to reach the targets. Extra contribution from stakeholders who could not attend the meeting was received afterwards.

A second meeting open to all organisations related to the sector took place on 4th July 2013. During that meeting, the results of the first working group were presented and, accordingly, it was established the specification and prioritization of issues related not only to the SWOT analysis but also to the strategic lines and actions aimed to achieve the desired objectives.

In addition to face-to-face participation, contribution from other entities was received. Although some entities representatives could not attend the meeting, they reviewed the document and sent their opinions by e-mail to the technical group.

A draft was made with all the compiled material. After a thorough revision by the stakeholders this final document was written up and approved as part of the HAproWINE project in the annual monitoring meeting held in Barcelona on 6th and 7th November 2013.
Presentation of the Strategic Document

The final document will be presented in different conferences open to the general public and to the wine sector in particular. The Regional Government of Castilla y León through the Departments for Agriculture and for Public Works and Environmental Affairs, will collaborate in these conferences.
3. SITUATION OF THE WINE SECTOR IN CASTILLA Y LEÓN.

Castilla y León has a renowned place within wine references in Spain, with a production of 1.6 million hectolitres in 2009/2010, which is 4.7% of the national production.

Undoubtedly, its nine Designations of Origin (DO) have had an influence in achieving these results. DOs of the region are: Ribera del Duero, Cigales, Rueda, Toro, Bierzo, Arlanza, Arribes, Tierras de León and Tierra del vino de Zamora (Figure 5); and four wine regions that sell their wine with the Vinos de la Tierra mention, a quality label that guarantees the origin and quality of wine to the consumer.

![Designations of Origin in Castilla y León](image)

**Figure 5.** Designations of Origin in Castilla y León

Castilla y León is the only Spanish Autonomous Community that, from the year 1995 to the year 2010 has undergone a continuous growth in sales of DO wines, tripling its market share up to date. In this way:

- In the catering industry, DO wines in Castilla y León have experienced an increase in the national market share, up to 22.6% in 2010, reaching a sales growth of 6.6% in a situation where sales of quality rating wines are decreasing. This rise in the market share of the DO wine in Castilla y León has also had an influence in the food industry, where Castilla y León wine sales have increased above the average, 8.3% compared to 6.6% of national increase.
• There is a boost of sales in white wines within Rueda DO, which are a clear driving force in this wine category, leading sales of this kind of wines with a 32% market share.
• The Cigales DO and Tierra de León DO are also augmenting within the rosé wine market, reaching a 9% market share.
• The Ribera de Duero DO continues with a significant growth within the red wine category in the last years, achieving 12.1% of all the national sales of this type of wine, holding a second place within the brand quality of its kind.

Moreover, in the year 2009, wine exports in Castilla y León encompassed an economic value of 94 million euros, an amount that stands for 9% of exportations in the whole agri-food sector in the region. Rueda DO leads wine exports in Castilla y León, gathering almost 50% of the full amount, followed by Ribera de Duero DO that represents around 25% of the exports.

However, the importance of wine sector in Castilla y León goes further than the economic scope, as it has an essential social purpose, maintaining rural areas populated and becoming a source for rural development and a boost for tourism and environmental preservation.

There are more than 650 wineries in Castilla y León, more than 500 of those are registered in one of the nine designations of origin in the region. The designation of origin that brings more municipalities together is Ribera de Duero, with 95 municipalities and 20,841 ha of vineyard. This designation of origin also has 8,252 wine growers, 279 wineries and a production of 566,665 hl of wine in the year 2010, which is 51% of the wine produced under designation of origin in the region.

El Bierzo is the most populated DO, and 60% of its population is concentrated in the city of Ponferrada. Nevertheless, its production is only 59,553 hl.

Wine production in Rueda DO reached 333,237 hl in 2010 (30% of wine produced under designation of origin in the region). This designation comprehends 67 municipalities, 11,739 ha of vineyards, 55 wineries and 1,467 wine-growers.

Tierra del Vino de Zamora, Arribes and Arlanza DO have less production, with 553; 2,579 and 3,669 hl, respectively. But even so, the three of them together include 850 wine-growers and 36 wineries.

3.1. Mission and Vision

The objective of this document is to establish some guidelines to help the wine sector in Castilla y León be in the forefront of the international market, as a benchmark for sustainability, producing and commercializing wines of original identity that adapt to the market necessities within a sustainability framework through a responsible use of natural resources, low carbon emissions and a preservation of landscape and biodiversity.
3.2. SWOT Chart

A strategic analysis can not only determine the strengths, but also the weaknesses of the wine sector in Castilla y León, as well as assess the external threats and opportunities. This analysis is based on the public participation of stakeholders and on the knowledge that the HAproWINE working group, led by Fundación Patrimonio Natural de Castilla y León, has gained in the sector during the development of this project. It should not be forgotten that the last objective of this study is to identify the strategic lines to reinforce environmental sustainability in the whole sector in Castilla y León, forging its role as a driving force for local development.

In Table 1 there is a summary of the main ideas contained in the SWOT matrix. Those in the first place of each section are the ones which have been identified by the participants in the consultation process as the most relevant in each case.

Table 1. SWOT analysis

<table>
<thead>
<tr>
<th>STRENGTHS</th>
<th>WEAKNESSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Great potentiality for recycling and recovery of the land and winery wastes.</td>
<td>• High energy, and occasionally water consumption.</td>
</tr>
<tr>
<td>• Territorial, historical and cultural background enfolding the product.</td>
<td>• The economic factors of the sector limit the possibilities of applying sustainable strategies.</td>
</tr>
<tr>
<td>• Great potentiality for applying renewable sources of energy and technologies for improving energy efficiency.</td>
<td>• Fragmentation of the sector, lack of joint cooperation initiatives that optimize the efforts and reduce costs. For example, joint waste management.</td>
</tr>
<tr>
<td>• Social context where the environmental issues are an increasing concern.</td>
<td>• Low environmental awareness of at least part of the sector and the market (giving little value to the production that is respectful with the environment).</td>
</tr>
<tr>
<td>• Internationally renowned Designations of Origin.</td>
<td>• Organic farming methods are not very popular. Besides, there is a widespread belief that it is expensive production-wise.</td>
</tr>
<tr>
<td>• Favourable weather, especially due to winter/summer and day/night temperature contrasts that benefit quality.</td>
<td>• Excess of labels on packages which added to lack of information, causes confusion among consumers.</td>
</tr>
<tr>
<td>• Broad wine experience and tradition, well-trained professionals.</td>
<td>• Low level of qualification to meet the challenges of sustainable production.</td>
</tr>
<tr>
<td>• Previous joint strategies within the sector (DEMÉTER, Wineries for Climate Protection [WCP], Environmental Group in The Spanish Wine Federation [FEV], EcoSostenibleWine, the Wine Technology Platform of Spain [PTV]...).</td>
<td>• Stricter environmental requirements compared to other autonomous communities (e.g., mandatory individual water treatment plants). Lack of consistency between different provinces.</td>
</tr>
<tr>
<td></td>
<td>• Constraints in implementing certain improvements in sustainability (e.g. lighter bottle weigh).</td>
</tr>
<tr>
<td></td>
<td>• Concerns when communicating “green” actions, because it is believed that consumers do not have enough information to understand them correctly. In addition, the appropriate means or ways to communicate sustainability are unknown.</td>
</tr>
<tr>
<td></td>
<td>• Complex administrative procedures to implement management systems: quality, environment, organic farming...</td>
</tr>
<tr>
<td></td>
<td>• Many designations of origin in a small territory.</td>
</tr>
</tbody>
</table>
### SWOT TABLE: Environmental Sustainability

**OPPORTUNITIES**
- Development of a common strategy for environmental assessment that will lead to work out objectives and agreed indicators in order to identify points for action and to reduce environmental hazards, as well as to increase efficiency in the use of material and energy resources.
- Technologies for the recovery and reuse of waste aimed at obtaining high added-value compounds or energy generation.
- Increasing consumer awareness towards products coming from sustainable farming.
- Optimized management of energy and water. Potentiality of cost reduction tending to be self-sufficient regarding energy production.
- Tax deductions for environmentally friendly investments.
- Diversification. Development of new products derived from vine growing, wine or its waste and/or supply of new services such as those linked to wine tourism (having in mind its complexity for wineries).
- Introduction of the concept of eco-design in the wine sector.
- Internationalization, introducing the products in new countries.
- New specific programs promoting sustainability in the sector.
- International treaties with economic allowance for sustainable production.
- Stricter legislation to reduce environmental hazards.
- Implementation of land stewardship projects to promote biodiversity in vineyards. These projects improve the reputation of the participating companies through the information disseminated by Nature Conservation NGOs.
- New financing options for the implementation of energy efficiency technologies and renewable energy systems.
- Reducing costs (in production and transport) and environmental impact (including carbon footprint) through measures such as lightening the weight of bottles.
- Research projects that help to adapt to the continuous changes in the sector.

**THREATS**
- There is strong competition from other regions and countries. The current economic situation increases the demand for low-cost/quality wines that are not produced in Castilla y León.
- Dependence on scarce resources, such as water or some that are continuously increasing in cost, like energy.
- Lack of standardization and homogeneity on regulations and their application in the context of environmental labels.
- Overexploitation of resources.
- Confusion, misinformation and lack of environmental awareness on consumers.
- Effect of climate change.
- Risk of illness if plant protection products that are not regulated by the National Action Plan for Sustainable Use of Plant Protection Products are used.
4. STRATEGIC LINES OF ACTION

This Strategic Document for the Environmental Sustainability of Wine Sector in Castilla y León has been structured in six sections: waste, sustainable management, environmental technologies, oenology-tourism-heritage, water and energy. Following this, the main strategic lines for each of these sections have been identified and actions to tackle them have been set. Once again actions have been prioritized high to low, depending on the importance assigned by the participants in the working groups in the public participation process.

4.1. Waste

Members of the wine industry are facing major challenges in managing waste generated not only in the production process, but also in the distribution and consumption of wine. Some of these issues have more or less implemented and effective solutions, others still pose a challenge for a proper environmental management. Finding innovative, worthwhile and highly efficient environmental solutions is everyone's responsibility.

- To optimize the logistical network for waste collection.
- To establish collaborative programs between companies to promote research and development projects for revaluation of waste.
- To create a network of companies (a specialized database) providers of waste management in the region - business opportunities and job creation.
- To develop feasible waste recycling processes.
- To design new products deriving from grapes and wine.
- To generate a market of by-products. To create a single company centralizing the purchase and collection of recyclable waste that can be used as by-products.
- To establish strategies to highlight and rationalise by-products generated on land and wineries.
- To design and implement information programs and/or specific training on methods of waste recovery, for example, on compost production.

4.2. Sustainable Management

Nowadays, the efficient minimizing or elimination of impacts (economic, social and environmental) over the life cycle of a product, such as wine, requires proper planning and the identification of appropriate measures. This is known as sustainable management. Within an appropriate and effective system of sustainable management, each entity can decide on the level of detail and control they want to act at but, as a minimum, it must be included: i) appropriate control of inputs and supply planning (raw materials including water, energy ...); ii) effective impact detection systems; iii) properly planned measures to minimize or eliminate negative impacts; iv) monitoring
and control systems; and v) reporting and communication. For a successful management it is also essential the collaboration of all stakeholders at all stages.

- To develop agreed indicators, based on the life cycle analysis, and methods to assess the environmental impact.
- To search for solutions to increase energy and water efficiency, both in the vineyard and in the winery.
- To implement environmental management systems, certified (ISO 14001/EMAS) or not, or energy management systems.
- To launch mechanisms that promote sustainability through the value-chain.
- To apply wine growing strategies enabling vineyard adaptation to the effects of climate change, and reducing its negative consequences in the process of development.
- To elaborate certification protocols for organic wine and oenological products suitable for organic wine production, according to current regulations.
- To integrate the different aspects of sustainability (climate change and emissions of greenhouse gases (GHGs), energy saving, change in land usage...) within the legal framework.
- To research and publish data on carbon, nitrogen and water balances in vines.

4.3. Environmental Technologies

Science and technology are improving at an unstoppable pace in finding practical solutions to everyday problems. The wine sector, like any other, must be opened to adapting its production to those developments that may be useful and to the incorporation of new processes and suitable technology systems. Due to this continuous progress it is important to be updated about innovations, who are applying them, what are the outcomes...

- To find and implement ways to improve the efficiency and sustainability of wine-growing practices (acting on land preparation and crop management) as well as of processes in wineries.
- To establish systems for monitoring consumption at wineries.
- To increase production and use of renewable energies in the wine sector.
- To develop systems to observe the role of the vineyards as carbon sinks.
- To design new and less polluting containers and packaging for the wine industry.
- To study the capture of CO₂ emissions from fermentation.
- To research and monitor climate change impact in vineyards and wine production and development of processes, techniques and technologies for the adaptation of the sector to climate change.
4.4. Oenology - Tourism - Heritage

With a product like wine, business opportunities are increasingly diversifying and new ways of knowledge and enjoyment for citizens arise. At the same time, the link of this economic activity to the protection of natural and cultural heritage and to the promotion of cultural and scientific development becomes stronger.

The stunning landscape and wealth of monuments in the wine region of Castilla y León, alongside with the quality and wide variety of its tourism services (catering establishments, vineyards, wineries, renowned professionals, upscale food products, culinary tours, shows, etc...) bestow the region with adequate features for the development of wine, tourism and heritage.

- To reinforce territorial, historic and cultural values (protection of traditional vineyard landscapes as cultural heritage) in order to favour the enhancement of the rural world, the establishment of population and the respect for the environment.
- To implement collaborative programs that promote joint work and union within the sector.
- To promote wine as part of rural tourism and associated to other values of the natural, historical and cultural heritage.
- To boost collaboration between local authorities, public bodies and industry to identify, mark and promote wineries in existing tourist routes and greenways in traditional paths linked to the vineyards and wines, as well as to create tour packages that include visits and tours through the vineyards.
- To develop new tourism products related to wineries and vineyards.
- To promote the protection of landscape of vineyards through the instruments of territorial and urban planning, as well as by developing land stewardship agreements that favour conservation of biodiversity in vineyards.
- To foster methods for pest and predator control by using environmentally friendly techniques, especially by partnering with insectivorous birds and/or predators.
- To encourage interaction between the vineyards and the Natura 2000 network.

4.5. Water

A major environmental impact related to winemaking is sewage water mainly linked to cleaning and disinfection of equipment in the winery, as it is explained on European Commission reference document on Best Available Techniques (BAT) in the Food, Drink and Milk Industries (EC, 2006). Moreover, considering that water in the future may become a scarce and expensive resource, another important factor to consider is water consumption in both vineyard and winery.

- To improve water management in land and wineries.
- To increase the integration of technologies for water reuse in land and wineries.
• To homogenize criteria related to the application of legislation: especially regarding the obligation of an individual water treatment plant per winery.

• To implement the outcomes of other initiatives in this field: Sustavino, Sinergia, River Duero Water Board…

• To monitor bad irrigation practices: promotion of more efficient irrigation systems (dripping).

• To control water consumption in land and wineries.

4.6. Energy

Energy consumption occurs in wineries at all stages of the winemaking process, from the entrance of the harvested grape in the receiving hoppers to the product shipment. In order to minimize energy consumption it is necessary to improve the efficiency of facilities and implement best practices to achieve a more sustainable production that will help to increase the competitiveness of enterprises, reducing their energy and environmental costs. The main areas for improvement in this field focus on refrigeration, heating, air conditioning, pumping, compressed air and lighting systems.

• To increase integration of energy-efficient technologies both in land and wineries.

• To promote financing systems for investments in energy saving, efficiency and use of renewable energies.

• To improve energy control and management.

• To apply systems for obtaining bioenergy from by-products of the manufacturing process (seed compost, skins and stems...).

• To develop a network of energy knowledge where the exchange of best practices focused on energy saving will be enhanced.

• To design and implement a program of coaching on energy and sustainability.

• To prepare and distribute a manual clearly explaining bills and options in the energy market.

• To improve energy efficiency in the design and construction of wineries. Sustainable buildings.
5. FUTURE LINES

This Strategic Document is a living document and an open process. For its development it is essential the contribution and involvement of all stakeholders. Therefore, to establish itself as a reference document for the sector it is important to exploit synergies with other regional initiatives, as it is explained below.

5.1. Synergies with Different Regional Initiatives


A new strategy for the agri-food industry was announced by the President of the Castilla y León Regional Government in the debate about general politics held in the Parliament of Castilla y León on 26th June 2013.

Many of the actions proposed in this Strategic Document for environmental sustainability can be supported by the general strategy for the agri-food sector to be drawn up.

5.1.2. Smart Specialization Strategy RIS3

This Strategic Document should be in line with the Regional Strategy of R + D + I of Castilla y León, and the Smart Specialization Strategy RIS3, helping to prepare the Region and, more specifically, the wine sector to overcome the challenges of European regional policy in the new 2014-2020 framework.

5.1.3. Valle del Duero Regional Plan

The Valle del Duero Regional Plan is an Instrument of Planning linked to the Duero River, which has four purposes:

- To establish a territorial model for Castilla y León with a balanced and sustainable development of Valle del Duero.
- To make the production system compatible with the environmental and cultural protection of Valle del Duero.
- To ensure social, economic and territorial cohesion of Valle del Duero.
- To enable coordination of the government departments for an even and homogeneous treatment of Valle del Duero.

The Valle del Duero Regional Plan is structured around five strategic focusses (Figure 6), one being “Duero, River of Quality”, which is committed to developing measures to take advantage of the high quality agri-food products as well as of the economy based on agri-food values in the area.
Several issues linked to this point will be developed, including matters related to the optimization of the agricultural sector, programs to promote high value crops, encouraging innovation, quality and marketing support for the products from Duero River basin.

Cross-cutting concerns such as integrated and organic farming, the role of standards, certification and quality brand, as well as the search for efficiency in production and marketing systems to extend the success of the Duero agri-food industry will also be addressed.

Energy
DUERO, RIVER OF ENERGY

Culture and Heritage
DUERO, RIVER OF HERITAGE

Agri-food Quality
DUERO, RIVER OF QUALITY

Infrastructures and Technology
DUERO, RIVER OF INNOVATION

Water and Natural Resources
DUERO, RIVER OF SUSTAINABILITY

Figure 6. Valle del Duero Regional Plan
6. BIBLIOGRAPHY


- LIFE HAproWINE. Deliverables D4 “Technical & Environmental Characterization Report” and D6 “Economic & Social Overview Report”.

7. ANNEX

The process of public participation and consultation for developing the Strategic Document has been carried out in several stages, as it has already been explained in the document (see section 2.1). For the proper implementation of this process a number of tools and activities that clarify the understanding of the document and the information sharing were planned.

Firstly, some worksheets were designed for a SWOT analysis (Strengths-Weaknesses, Opportunities and Threats) of sustainability in the wine sector. Participants in the project have been working on those, supplementing and prioritizing them in subsequent working groups.

Similarly, some worksheets for the establishment of strategic lines on sustainability in the wine sector and actions required under each of them were designed. Following the same model, the prioritization of these actions was also regarded in a second stage of the project.

The organisations that have actively taken part in this process, both by attending to working groups meetings and/or contributing via e-mail, are listed below. Some of the entities included in the list have shown interest in the process and its outcomes but were unable to attend meetings due to prior commitments.

In writing this document the following entities have actively taken part:

- HAproWINE project partners:
  o Fundación del Patrimonio Natural de Castilla y León.
  o Fundación Centro Tecnológico de Miranda de Ebro.
  o UNESCO Chair in Life Cycle and Climate Change.
  o PE International.

- Members of the advisory committee, and more actively:
  o Abadía Retuerta, S.A.
  o Bodega Mª Amparo Repido
  o Bodega Melgarajo
  o Bodega Pago de Carraovejas
  o Bodegas Grupo Yllera, S.L.
  o Bodegas Hermanos Páramo Arroyo, S.L.
  o Bodegas José Pariente, S.L.
- Other representatives of the sector:
  - Pago de Ina
  - Bodegas y Viñedos Montecastro
  - Bodegas y Viñedos Valtravieso, S.L.

From these lines the project partners want to acknowledge the valuable participation of all the entities listed above. We would also like to take the chance to thank other people and entities that have expressed their support and interest throughout the entire process of preparation of this document.

- From the project advisory committee:
  - Bodegas y Viñedos Alfredo Santamaría
  - Centro Tecnológico Agrario y Alimentario - ITAGRA
  - Comenge Bodegas y Viñedos, S.A.
  - Fundación CIDAUT
  - Grupo “El Árbol”
  - Solhídrica del Norte 2008, S.L.

- Other entities:
  - Bodegas Pagos de Mogar, S.L.
  - CRDO Cigales
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