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# Wine through the veins of Piemonte: Protecting the natural resources that bring life to the region

## Case Study Analysis and Policy Recommendations

### Abstract

Determining the natural tourism potential of a region and developing tourism in order to create employment and income opportunities in rural areas is an effective tool for economic and social revival in rural regions. This paper examines the vineyard landscape of Langhe-Roero and Monferrato and the protection and enhancement of its natural resources through tourism development. The case study area is a wine region in Italy between the provinces of Asti, Cuneo and Alessandria. The vineyard landscape of Piedmont used to be a poor and marginal region, however, it has come to the fore as a living cultural landscape with its natural and cultural resources, developing over time and seeing a two-fold increase in the number of visitors in the last ten years. The region, strongly characterised by its hilly landscape, authentic wine growing and winemaking traditions, important and well-known vineyards, and by their fine wines and unique local products, has been a UNESCO World Heritage site since 2014. This paper examines how sustainable tourism in rural areas can be developed with natural resources, wine tourism and agricultural sustainability approaches. Relying on natural resources, the region's tourism sector can develop economically and ecologically. Drawing on the need to protect and promote the natural resources of the region, this paper provides pertinent policy recommendations to solve pressing problems leading to viable and feasible solutions and opportunities for the region.

Keywords: Langhe-Roero and Monferrato, Sustainable Agriculture, Tourism Development, Natural Resources, Vineyards, Policy

## Theoretical and methodological framework

### Aim of the report

The increasing need for progress in the contemporary era is an inevitable truth. The willingness to “have a new world” is reason enough to have a plan for that. Moreover, we do not have any “planet B” for this plan, and based on previous experiences, we have to create a plan which works in the long-term. The vineyard landscape of the Langhe, Monferrato and Roero area, recognised for its long-standing traditions in winemaking, its interaction with the environment and the aesthetic qualities of the area, is a region that needs a concrete plan of action to mitigate the effects of climate change while at the same time fostering economic growth and sustainable tourism development. This report aims to address the issues around the use and degradation of natural resources in the area, the need to protect its natural resources and enhance its tourism attractiveness making it beneficial to different groups of society.

### Literature review

Wine tourism, or oenotourism, as a cultural product has become an important theme in tourism development and more recently in discussions on sustainable tourism development. It is an important form of rural tourism that provides multiple opportunities for horizontal and vertical linkages within the rural tourism environment. Wine tourism can be viewed as a regional development tool, allowing for the integration of various sectors, including tourism, highlighting the wine territory’s landscape attributes and its uniqueness. Studies suggest that there are powerful motivations for wines and tourism-related businesses to become more environmentally sustainable. Moreover, environmental concerns for a sustainable wine tourism market include soil degradation, land use, and the amount of water used for irrigation. Examples of sustainable solutions for wine tourism-related businesses include: field rotation, water conservation, bioclimatic construction, certifications for environment protection, voluntary participation of wines in sustainability agreements and more. Developing a comprehensive and sustainable tourism plan along with sustainable wine production practices leads to stronger economic growth for wine tourism markets protecting and connecting local products, the countryside, traditions, cultural values and natural resources while emphasising the uniqueness of a territory (Karagiannis, 202).

Research has shown that sustainability plays a key role in the wine industry. One of the key factors found in success in spreading sustainable practices is local players’ networking capacity. In some specific areas, such as California, agroecological partnerships have fostered the adoption of sustainable agricultural practices and they have proactively spread a green orientation among wineries. The development of specific programmes for sustainable winegrowing has also fostered the adoption of “ground to bottle” practices for producing grapes and wine (Santini et al. 2013). According to Santini, the adoption of sustainable practices are highlighted by the willingness that institutions and organisations show in providing long term financial support to sustainability programmes and training activities. In fact, institutions and regulators have a prime role in enhancing wineries’ interest towards sustainability through funding the adoption of specific practices and education programmes. Finally, consumers’ involvement in sustainability is also reshaping wineries’ interest toward this issue.

Agritourism, the form of hosting tourists in farmhouses, has expanded across Europe and become an attractive tourism product offering authentic, immersive and cultural experiences. It has been considered an

efficient rural development strategy to alleviate out-migration, diversify the rural economy, grow economically, and it allows for cultural exchange between the local community and tourists (Canovi and Lyon, 2019).

According to research studies conducted in the area (Zucchetti, 2016), the Langhe-Roero and Monferrato vineyards have been affected by soil erosion and degenerative agriculture practices, caused by intensive agribusiness applied to the ancient vineyards. Periodic landslides have affected the vineyards and the local communities' infrastructures like roads, cemeteries, farms, and hospitals. Moreover, the environment is affected by leaching large quantities of phosphates and nitrates from artificial fertilisers into watercourses, along with soil debris that is accumulated at the bottom of the rivers causing floods (Zucchetti, 2016). In the area, the months more at risk of soil erosion are the winter months, between November and December, with an exception of March and April, characterised by heavy rainfall, snow, and snow melting. This is also because there is less vegetation during the winter months, due to the deciduous kind of vegetation present in the area, the so-called C-factor (Cover management factor). Vegetation helps to protect the soil from heavy rainfall, slowing down the speed of the impact of the raindrops on the top soil. By taking away fertile topsoil, erosion decreases soil productivity and, where soils are superficial, it may produce a permanent loss of agricultural land. Serious erosion is associated with the establishment of temporary or permanently eroded channels that can fracture farmland. The Langhe is particularly predisposed to soil erosion because it is subject to lengthy dry periods followed by heavy erosive rain, falling on steep slopes with fragile soils. This means no water absorption by the soil because sand and silt have very high drainage values. Soil erosion is also the result of deforestation in the Langhe, where trees have been removed in place of vineyards preventing the soil from holding moisture (Zucchetti, 2016).

## Methods

The vineyard landscape of Langhe-Roero and Monferrato case-study approach involved distinct methods of data collection using qualitative techniques, i.e., a panel discussion with local stakeholders held in Serralunga D'Alba, presentations at the Politecnico di Torino, observations in the field, more precisely in the town of Barolo, group discussions, and through the analysis of documents. After collecting and analysing the data, data was interpreted, and finally objectives and strategies were proposed in order to provide recommendations on sustainable tourism development through tourism enhancement and management in the Langhe-Roero and Monferrato region. A stakeholder and a SWOT analysis were also conducted to better understand all the actors involved as well as the main challenges and opportunities of the case study at hand.

## Case study analysis

### Case study area

The vineyard landscape of Langhe-Roero and Monferrato is a wine region located in Piedmont in northern Italy, 90 minutes from the city of Turin, between the provinces of Asti, Cuneo and Alessandria. The vineyard landscape extends over 100 municipalities of about 300,000 inhabitants and was included in the UNESCO World Heritage List in 2014 for its natural and cultural elements. The perimeter of the UNESCO site is comprised of six core zones and two buffer zones. The core zones represent the Outstanding Universal Value while the buffer zones protect the OUV and connect the elements of the wine-making process. Most of the

municipalities of Asti, Cuneo and Alessandria are included in the core zones. The buffer zones of the UNESCO site are: “Langa of Barolo”-where the companies of famous wines are located; “Grinzane Cavour Castle”-a historical castle with an experimental vineyard; “Hills of Barbaresco”- a zone known for social-productive companies of Barbaresco wine; “Nizza Monferrato and Barbera”-medieval commercial settlements; “Canelli and Asti spumante”-characterised by architectural, urban and industrial elements in the production of wine; and “Monferrato of the Infernot”-characterised by vernacular architectures inside geomorphological formations.

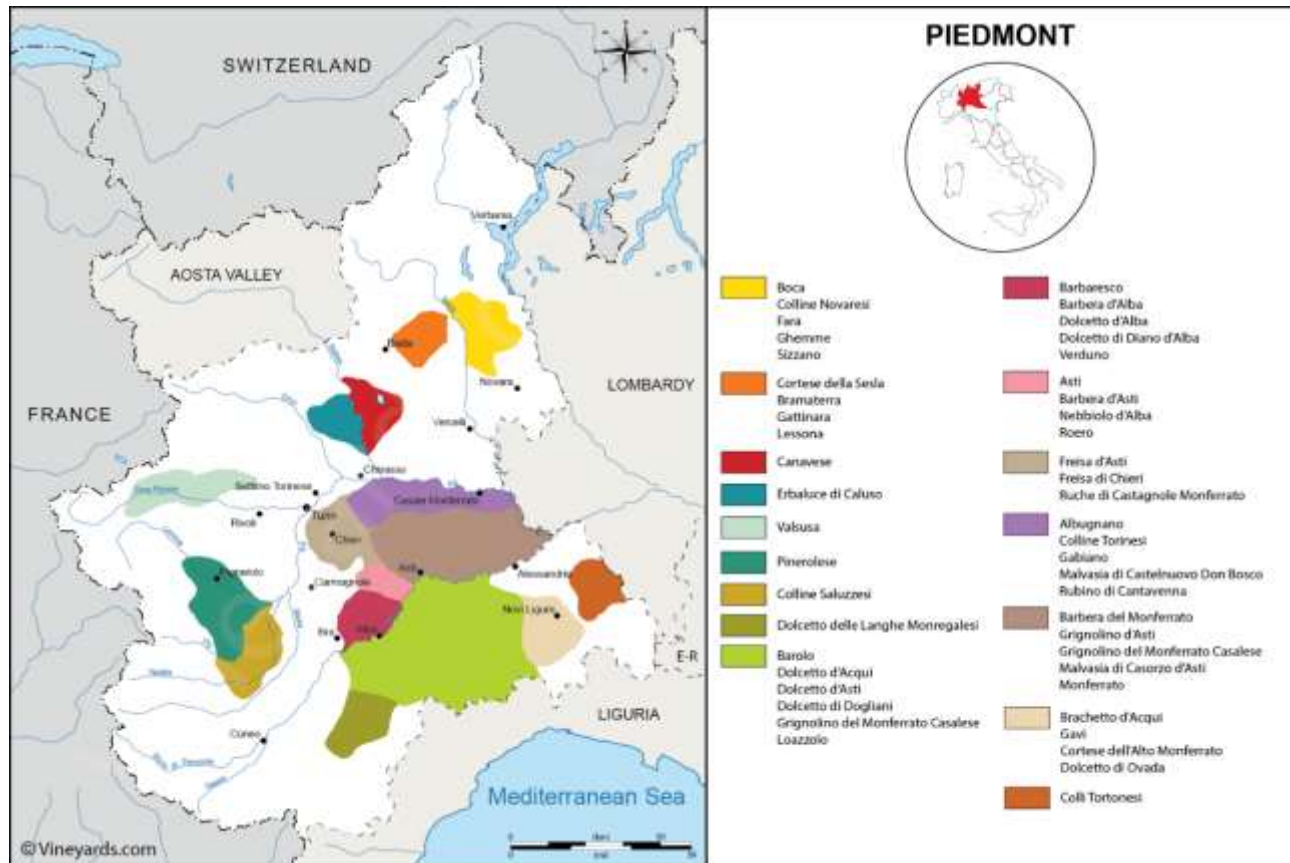


Figure 1: Piedmont wine map.

Source: <https://vineyards.com/wine-map/italy/piedmont>.

The case study area also has a rich history. During the Second World War, the Langhe was the scene of the partisan resistance struggle, described in the novels of Beppe Fenoglio. With the renovation of farmhouses and castles, farmhouses, ethnographic museums and remarkable agricultural productions, the area returned to prosperity from the 90s onwards. In 2014, the inscription in the World Heritage List increased the visibility of this area rich in both tangible and intangible resources. The vineyard landscape is, indeed, characterised by its historical structure and by the existence of picturesque small towns that feature castles and a rich architectural heritage. The famous wines of the Langhe area, such as the Barolo and Barbera contribute to the importance and uniqueness of this area together with other outstanding local products, namely the White Truffle of Alba and the hazelnut of Langhe. The last five years have seen an exponential increase in the number of visitors to the region.

Currently, the vineyard landscapes of Langhe-Roero and Monferrato consist of a selection of five distinct winegrowing areas and a castle, whose names evoke profound and ancient expertise in the relationship

between man and environment. They reflect a slowly developed association between a diverse range of soils, grape varieties that are often native, and suitable winemaking processes. They offer panoramas of carefully cultivated hillsides, following ancient land divisions punctuated with buildings that lend structure to the visual space: hilltop villages, castles, Romanesque churches, farms, cabots, cellars and storehouses for cellaring and for the commercial distribution of the wine in the small towns and larger towns on the margins of the vineyards. The region is characterised by the balance between the aesthetic qualities of its landscapes, the architectural and historical diversity of the built elements associated with the wine production activities and an authentic and ancient art of winemaking.

The cultural landscapes of the case study area provide outstanding living testimony to winegrowing and winemaking traditions that stem from a long history, and that have been continuously improved and adapted up to the present day. They bear witness to an extremely comprehensive social, rural and urban realm, and to sustainable economic structures, including a multitude of harmonious built elements that bear witness to its history and its professional practices. The winegrowing landscape also expresses great aesthetic qualities, making it into an archetype of European vineyards. Moreover, the use of the soils, the built structures and the social organisation of all the stages of the winemaking process, from tending and harvesting the grapes to vinification, are an expression of continuity of ancient practices and expertise.

The case study area was analysed through the lens of the protection of the natural resources of the vineyard landscape while at the same time seeking to improve and continue to foster sustainable tourism development in the region. In order to provide adequate policy recommendations, a stakeholder analysis and a SWOT analysis were conducted. These allowed for the development of practical policy recommendations for local stakeholders and decision-makers. The findings based on the meeting and conference with the local stakeholders and SWOT analysis suggest a number of key recommendations concerning policies, practices, and effective approaches towards protecting the natural resources and overcoming any tourism development barriers. These key recommendations are summarised below and are explained in more detail in this report.

## Stakeholder analysis

The process of choosing stakeholders is related to their benefits and responsibilities. The former part is divided into two parts which are tangible and intangible. Some stakeholders' benefits are related to their experience and their time, so they are known as intangible benefits. The tangible benefits are known as revenue which is gained by developing the area. The responsibilities for the area are another element for choosing the stakeholders. It is short-term and long-term. Some stakeholders, for instance, tourists have less responsibilities in terms of time for the area in comparison with locals.

A stakeholder analysis was undertaken for this report. The stakeholder analysis is an important process used to know and understand the main actors involved in a case study. This approach allows us to understand and assess the power and interest that every stakeholder holds during the decision-making process. It is essential for a tourism development project's success to understand every actor's main interests, influences, challenges, and interrelations. The main objective of this stakeholder analysis is to identify the key stakeholders, their motivations, interests, and challenges.

The first step taken was to identify the main stakeholders involved in this case study. These are:

- Tourists
- Vineyard/land owners
- Government: local and regional
- Local residents
- Researchers
- Business owners
- Investors
- Transportation operators
- UNESCO representatives
- Farm workers
- Environmentalists
- DMO, project developers

The methodology adopted for the analysis included the participation in a meeting/conference with local stakeholders and working group discussions. After having identified the main stakeholders, we specified for every stakeholder the score of parameters connected with the influence and interest that each type of actor has in the case study. This process helps us understand what kind of stakeholders we are working with.

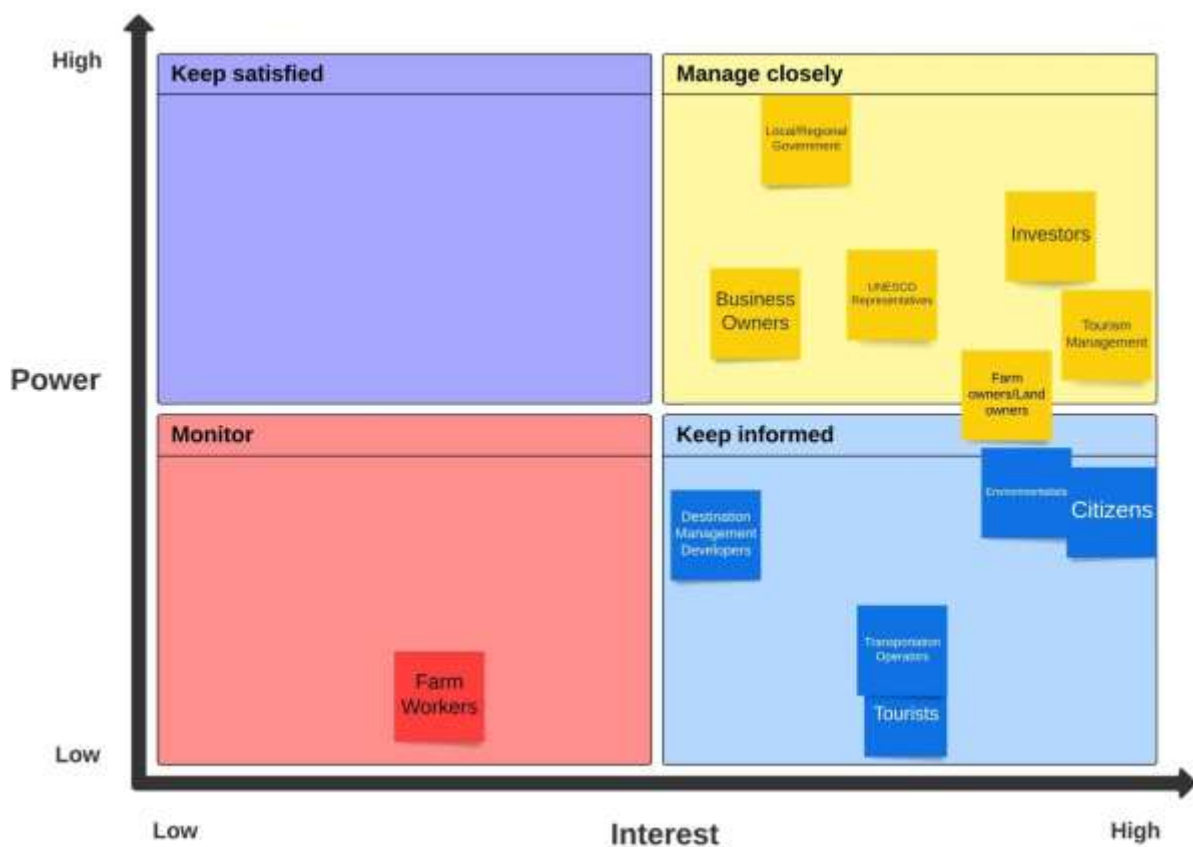


Figure 2: The map of the stakeholders influence and interest.

Source: own elaboration.



There are four different types of stakeholders that have to be managed during the decision phases:

- **MONITOR** people who have low interest and low influence (workers/farm workers).
- **KEEP INFORM** people who have high interest and low influence (tourists, transportation operators, citizens).
- **KEEP SATISFIED** people who have low interest and high influence.
- **KEY PLAYERS** people who have high interest and high influence (local/regional government, farm/land owners, investors, tourism management, researchers/environmentalists).

In table 1, the relevance and interest of each stakeholder is recognized. Based on these characteristics, the parameters of choosing the stakeholders are explained. The analysed elements of parameters are known as interest and expectation. The relationship between the stakeholders and the area is a two-dimensional one. The stakeholders have an impact on the project and they can influence the process of the project. The amount of impact and influence is the key element that contributes to their roles in the project.

Table 1: Stakeholder analysis.

Stakeholders	Characteristics and role	Impact on stakeholders (low/ medium/ high)	Influence on project (low/ medium/ high)	Interest and expectation
Tourists	Their presence is for a short time period. And they play as the engine of economy in this region	Low One of the aims of the project is increasing and maintaining the number of tourists	High The unique visiting	Interests: The unique visiting Expectations: The high quality experience
Land owners	A large number of them are locals but some companies and others can be counted on this group	High The outcome of the project affects the quality of their lives in different dimensions	High Most of them can vote; Some programmes are related to their behaviour pattern	Interests: Continuing the process of touristification Expectations: Conserve their farms
Local government, regional government	They need the vote; They have a framework	High Their plans can be positive or negative in this process	High In a long term period their revenue depends on the project	Interests: The unique visiting Expectations: The high quality experience
Citizens	Their presence in the area is permanent	High Daily lives are related to the economy and maintaining the area	High They can affect the other stakeholders	Interests: The unique visiting Expectations: The high quality experience

Stakeholders	Characteristics and role	Impact on stakeholders (low/ medium/ high)	Influence on project (low/ medium/ high)	Interest and expectation
Business owners	The outcome of their investments is their first priority; They can be long or short term presence	Low They follow the rules	High The number of tourists affects them	Interests: Increasing the revenue Expectations: The high quality experience
Investors		High They willingly chose the plans	High The outcome of the project affects their wealth; Their reputation is related to the project	Interests: Conserve the area as much as possible Expectations: Increasing the income
Transportation operators		Medium Their quality services is a vital part of the project	Medium One of the aims of the project is increasing and maintaining the number of tourists.	Interests: The unique visiting Expectations: The high quality experience
UNESCO representation	They control monitoring factors	High Key role for monitoring the project; Their participate in the future plans	Medium It may affect their jobs	Interests: The unique visiting Expectations: The high quality experience
Farm workers	Some patterns may be defined for their jobs	High The core of the project is their job place	Medium The instructions may change their situation	Interests: Increasing the number of farms Expectations: Considering their situation
Environmentalists	Passionate about the environment of the area	Low This group by their behaviour pattern and experiences can have a strong effect on the project	Low One of the aims of the project is increasing and maintaining the number of tourists.	Interests: Conserving the area Expectations: Collaboration with others



Stakeholders	Characteristics and role	Impact on stakeholders (low/ medium/ high)	Influence on project (low/ medium/ high)	Interest and expectation
DMO, project developers	May be non-profit			Interests: completing the project Expectations: Other stakeholders collaboration
Researchers	They monitor and propose the future plans	High One of the aims of the project is increasing and maintaining the number of tourists	High One of the aims of the project is increasing and maintaining the number of tourists	Interests: Promoting the project Expectations: Collaboration

Source: own elaboration.

## SWOT analysis

The SWOT analysis evaluates the strengths and weaknesses, and the external opportunities and threats of the case study area. The analysis identifies resources, capabilities, and competitive advantages and is a critical element of the SWOT analysis. It pinpoints the resources that need to be developed in order for Piemonte to remain competitive and attractive. The analysis also identifies opportunities and threats by looking at different external factors.

The SWOT analysis was used as a tool to organise information on the case study area allowing for better guidance and identification of the current and future potential of the UNESCO Heritage Site. When presented as a SWOT matrix, strategic planning and management can be used to better apply policy recommendations. Following is the SWOT matrix of the report's case study area:

<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>- Policy: Well preserved historical architecture, Part of UNESCO heritage list</li> <li>- Society: Festivals (cheese- slow food, white truffle), Strong cultural affiliation</li> <li>- Technology: Simple technology (low on CO2 emissions)</li> <li>- Economy: High revenue on concentrated land areas, famous gastronomy in the region</li> <li>- Environment: Low on pollution, clean environment</li> </ul>	<p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>- Policy: lack of poor destination management and poor public transportation</li> <li>- Society: lack of synergy</li> <li>- Technology: lack of good internet connections</li> <li>- Economy: the real estate sector from benefits from landscape attractiveness</li> <li>- Environment: landuse regulation approach (overusing levels), interest with UNESCO regarding the protection of vineyard not to be changed to hazelnut production</li> </ul>
<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>- Policy: willingness to progress toward sustainable development</li> <li>- Society: regional product availability, advertisement, new movies, youtube, instagram videos and tiktok</li> <li>- Technology: electric bikes and scooters, electric vespas/motorcycles</li> <li>- Economy: agriculture and industry cooperation, regional product availability grape variety, e-commerce, abandoned buildings for hotels, new services, snacks, spa, hot tubs, play grounds, educating tourists, food workshops, wine tasting in the farms, bundy-jumping sports, zip-line, wine/ grape harvesting for tourists, wine bathings</li> <li>- Environment: height difference leads to grow different grapes, green logistic project for wine sector and tourism sector</li> <li>- Develop tourism/destination management to create synergies between regions and actors</li> </ul>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>- Policy: destabilized world situation</li> <li>- Society: out-flow migration (countryside—city), competition from other wine regions</li> <li>- Environment: parasites, climate change, soil erosion, pesticides</li> </ul>

Figure 3: SWOT analysis.

Source: own elaboration.

In Piemonte, the wine and tourism industry play a crucial role in the region's economy and contribute to job creation, protection of natural and cultural resources and the enhancement of sustainable tourism development. The wine and tourism industries have also been identified as environmentally destructive of land and hence in need of attention to mitigate the threats.

The use of SWOT analysis in the present study indicated common strengths, opportunities, weaknesses, and threats that can be highlighted for ensuring sustainable growth of the wine and tourism industries in Piemonte. It can be concluded that sustainable tourism development depends mainly on the environmental quality of the destination and on the protection and availability of its natural resources. Thus, adopting environmentally sustainable practices can convert the weaknesses to strengths and opportunities while reducing and avoiding threats.

## Policy recommendations

Based on the findings of the stakeholder analysis and SWOT analysis, conclusions and recommendations were made to address the challenges and opportunities of the case study area. With the damaging effects of climate change and generations of land overuse, the priority is to leave the land in a better shape for the next generation ensuring the environmental, economic and social sustainability of the area.

The vineyard landscape of the Langhe-Roero and Monferrato area has suffered from intense cultivation threatening the environment and possibly hindering future tourism prospects leading to soil erosion, the loss of biodiversity and an imbalance in the local ecosystem. Given that the area has been inscribed in the UNESCO World Heritage List and tourism has been growing almost two-fold in the region, the need to create sustainable processes and develop opportunities for innovation is of paramount importance. Increasingly, there is the growing need for a well-established synergy between the primary sector and tourism that can guarantee and foster sustainable competitive advantages.

Given the need to protect the natural resources of the vineyard landscape while developing sustainable tourism in the area with differentiating and unique tourism products, the following policy recommendations are proposed in order to ensure sustainable wine tourism development in the region. The recommendations are as follows:

### Promote the adoption of sustainable agricultural practices in the vineyards

This policy addresses the need to meet the UN's Sustainable Development Goals by 2030 and achieve Target 2.4- the move towards sustainable food production- as well as the needs to mitigate climate change and land overuse observed in the case-study area.

Strategies – Although there may be limits and challenges to achieving this policy recommendation, there are several strategies that can be adopted to achieve this policy:

- Encourage the adoption of biodynamic agricultural practices (a cultivation method which aims to take care of the soil respecting the natural cycles and giving fertility with every agricultural work); promote crop diversity to revitalise the soil;
- Create biological corridors (plantation of herbs) to regenerate and revitalise the soil, nourishing it and strengthening the vines;
- Restrict the use of pesticides, herbicides and fungicides; encourage composting;
- Encourage the use of vegetation surface covers (grass, clover, rye, hairy vetch) to protect the soil from rain, storm and wind erosion;
- Provide education and training to local farmers/winemakers on sustainable farming practices;
- Require all local wine producers and local farmers in the UNESCO area to follow sustainability practices. (provide financial and educational support to learn and acquire required material);
- Encourage green labels/certifications: The certification of environmentally friendly practices and the labelling of eco-certification on the product and services could increase the awareness of the environmental impact, and provides benefits to wine industries, such as improved reputation, increased product quality, which can lead to a price premium (Kariagiannis, 2020);
- Implement a rainwater recovery system to irrigate the crops.

### Develop authentic and engaging tourism experiences using the area's rich natural resources

Strategies:

- Develop oeno-gastronomic tourism: nature based gastronomic kitchen; food workshops; culinary immersive experiences; slow food tourism;

- Offer water sports activities in the Tanaro river (canoeing, kayaking);
- Establish green corridors/paths for hiking or biking;
- Develop a regional brand based on local food products that represents the entire wine region;
- Develop natural beauty products (creams, soaps) made of wine, hazelnuts, white truffle;
- Offer engaging tourism experiences, such as the tourists picking grapes during harvest season and learning about the winemaking process;
- Encourage agritourism (farming-related activities carried out in an agricultural setting for entertainment or education purposes), where tourists can stay on the farm and be immersed in the local culture.

## Diffuse the tourism flow

Strategies – The use of private transport in the area disturbs the tranquillity of the area, increasing air and noise pollution levels. We propose:

- Wine Bus- offer a free shuttle bus from Torino to Langhe-Roero and Monferrato that connects the different towns of the wine region;
- Entrance fee to visit the vineyard landscape;
- Impose measures to diffuse tourist flows during high season.

Table 2: Policy recommendations for problem solving in Langhe-Roero and Monferrato.

Problem	Goal	Policy recommendations	Beneficiaries	Time frame	Limitations
Climate change Soil erosion Reduction and loss of biodiversity Land overuse	Reduce the damage to the environment  Protect the soil  All while keeping the economy alive, improving the quality of life of those engaged in agriculture and developing practices for this purpose (increase in productivity)	Promote the adoption of sustainable agricultural practices in vineyards	Farmers  Business owners  Environmentalists	3-5 Years (2030)	Lack of cooperation  Lack of fundings  Lack of political will  Bureaucratic hurdles

Problem	Goal	Policy recommendations	Beneficiaries	Time frame	Limitations
inefficient use of the area, not benefiting from the natural resources in the region	Use of the area efficiently with the arrangements to be made in natural areas	Use the plethora of local natural resources to develop authentic and engaging tourism experiences (Regional recreational opportunities)	Tourists Local business Residents DMO Project Developers	5-10 Years	Lack of cooperation Lack of fundings Lack of political will Bureaucratic and legislative hurdles
Air and noise pollution caused by uncontrolled use in UNESCO area	Promote public transport	Restrict the use of private transport in the protected UNESCO area. The use of private transport in the area disturbs the tranquillity of the area, increasing air and noise pollution levels	Citizen Farmer Transportation operators Tourists	3 Years	Lack of transportation infrastructure

Source: own elaboration.

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