



# Ecological Vineyards Governance Activities for Landscape's Strategies

Output T2.1

## Action plan (AP) for the enhancement of landscape heritage, habitat and ecosystem services in wine-growing areas

Responsible Partner

ZRC SAZU

Final version

6. 2. 2023



## **BASIC PROJECT INFORMATION:**

PROGRAMME CALL: INTERREG V-B Adriatic-Ionian ADRION

Project Acronym ECOVINEGOALS

Project Number: 866

Programme Priority Axis: 2

Start – End Date: 01.03.2020 – 31.08.2022

Total budget: EUR 1 939 505.59

ERDF: 1 399 759.25 IPA: 248 820.5

**Lead Partner Organisation: LAG Eastern Venice, Italy**

Url: [www.ecovinegoals.interregadrion.eu](http://www.ecovinegoals.interregadrion.eu)

## **DOCUMENT INFORMATION**

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<b>Dissemination Level</b>	PP (Partnership document)

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December, 2020

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## Project Summary

ECOVINEGOALS promotes sustainability and resilience in the winemaking industry by encouraging the transition of intensive viticulture towards agroecological management systems that protect natural habitats and landscapes, while reducing chemical and fossil fuel inputs and harmful emissions. The project aims to enhance stakeholders' skills in participatory local governance, to strengthen transnational cooperation and provide specific transnational instruments to promote, support and manage the agroecological transition.

### **Expected results**

- Sharing between partners in the ADRION countries of fundamental concepts and practices necessary for the transition from intensive viticulture management systems, towards agroecological management methods.
- Improvement of the participatory local governance skills of decision makers and all other viticulture stakeholders, both public and private, to jointly develop and define strategies and plans aiming to protect natural habitats and rural landscapes.
- Transnational communication, cooperation, and exchange between regional authorities and civil society organizations concerning common objectives to protect vulnerable environments, to promote ecosystem services, to prevent or mitigate climate change, and to avoid social conflicts in land use.
- An increase in the number and quality of tools and strategies available to support the planning and management of the agroecological transition of viticulture systems in the region.

### **Partnership:**

<b>PP1- LP</b>	<b>LAG EASTERN VENICE, VEGAL (IT)</b>
PP2	Autonomous Province of Trento, PAT (IT)
PP3	Chamber of Agriculture and Forestry of Slovenia, KGZS-Zavod GO (SI)
PP4	Research Centre of the Slovenian Academy of Sciences and Arts, ZRC SAZU (SI)
PP5	Agency for rural development of Istria Ltd. Pazin, AZRRI (HR)
PP6	Association for the promotion of employment, vocational training and education, INFORMO (HR)
PP7	Business Development Center Kragujevac, BDCKG (RS)
PP8	Foundation Business Start-up Center Bar, BSC BAR (ME)
PP9	Municipality of Bar, BAR (ME)
PP10	Mediterranean Agronomic Institute of Chania, CIHEAM MAICh (EL)

### Associated Partners (APs):

General Union CISL Cultivators Venice (IT)
Bio district of production and biological community of central-eastern Venice - BIO VENICE (IT)
IAL - Innovation Learning Work S.r.l. - Social enterprise (IT)
AIAB-Italian Organic Agriculture Association (IT)
Agroecologiki SP (EL)
Municipality of Topola (RS)
Šumadija winemakers association (RS)
Ministry of Agriculture and Rural Development (HR)
Agroecology Europe (BL)

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## 1 INTRODUCTION

The starting point of the ECOVINEGOALS project was the fact that intensive management of viticulture in the ADRION region can lead to negative impacts on soil, water, and air quality, biodiversity and ecosystem services, and can lead to significant changes in fragile habitats and traditional landscapes. In this regard, one of the main ECOVINEGOALS objectives was to address the challenge of intensive viticulture systems and their negative effects. Apart from several strategies, local action plans, and tools, the project also helps to develop **a regional action plan aimed at reconciling viticulture** with other competing land uses and with the conservation of landscapes and habitats.

Based on the 8 landscape analyses, 8 local action plans for the pilot areas (see Appendices A1-A8), and participatory workshops in the pilot areas, we tried to identify objectives and actions for landscape and habitat conservation in the ADRION region. Each objective is compiled by short-, medium- and long-term actions, and where relevant, we added key target groups. All other detailed information including time frame, responsible institution(s) and the key stakeholders involved, expected results, indicators, potential resources, and risks and barriers for all specific actions are included in the individual local action plans in Appendices. Furthermore, many useful ideas, methods and techniques can be learned from the [ECOVINEGOALS Catalogue of Good Practices \(2020\)](#).

We recognise that based on the partial data mentioned above, we cannot generalise the local findings to the entire ADRION region and prepare an accurate Action Plan for the entire ADRION region. However, our goal is to **highlight trends related to viticulture landscapes and propose short-, medium- and long-term actions needed for conservation, preservation and restoration of viticulture landscapes in the ADRION region**. These actions should be further explored and improved as part of the future programmes and projects, and could be included in policy documentation and recommendations for the conservation of landscapes and habitats in the wine-growing areas of the Adrion region.



Figure 1: A mosaic viticulture landscape diversified with other land uses and landscape elements.

## 2 BASIC CHARACTERISTICS OF THE ADRION REGION

The data and information in this chapter are based on the programme document [European Territorial Cooperation, ADRION, Interreg V-B, ADRIATIC-IONIAN, COOPERATION PROGRAMME, 2014-2020](#) (2020). The ADRION region includes eight countries: four EU Member States (Croatia, Greece, Italy and Slovenia) and four candidate countries (Albania, Bosnia and Herzegovina, Montenegro and Serbia). The geographical area of each State covers its national territory except for Italy, where programme area covers 12 regions and 2 provinces. The area is rich in natural, cultural and human resources around the Adriatic and Ionian seas.

From a **demographic point of view**, the ADRION area is characterised by a strong imbalance in regional development, combined with an ageing population and depopulation in mountainous and rural areas. While population density does not vary considerably (Italy and Montenegro being exceptions), there is much greater variation within the countries themselves, for example Greece (Athens and Thessaloniki), Italy (Lombardy, Veneto, Emilia-Romagna, Puglia), and Serbia (Belgrade). Smaller, more polycentric countries, such as Bosnia and Herzegovina and Slovenia have higher proportions of rural population and population living in small towns. These patterns have important implications both for the level of human pressure in particular areas and also for the presence of unfragmented habitats and natural areas.

From an **economic perspective**, all included countries have been affected by the global economic crisis and some of them face significant economic problems and have limited public resources. On the other hand, the **environment** in the ADRION region has several specific and well-preserved environmental ecosystems, which are delicate and subject to a range of pressures associated with agriculture, industry and port activities, especially on water quality and coastal areas. The environment is also affected by seasonal tourism and urbanisation, leading to loss of biodiversity and ecosystem fragmentation, among other impacts. There are few investments in environmental infrastructure and the use of renewable energy sources is low. Candidate Countries in particular demonstrate the need to strengthen institutional capacity at all levels to implement environmental legislation and policies that promote sustainable development and a more balanced use of natural resources. The specific focus on **biodiversity** in the ADRION region shows a great variety of terrestrial and aquatic habitats and species. The diverse topography, climatic variation and human activities have resulted in a remarkable evolutionary radiation. More than 25,000 habitats and species are found here, half of which are considered to be endemic, making **the area a “Global Biodiversity Hotspot.”** However, the implementation of environmental initiatives such as Natura 2000 is not satisfactory due to the lack of effective management capacities. Additionally, human impact is increasing due to pollution, land use, leisure activities, etc., especially in very fragile areas, such as coastal ecosystems.

In terms of **land use**, the ADRION area is characterised by extensive **mountainous areas** (Albania, Greece, Montenegro, and Slovenia being some of the most mountainous areas in Europe). **Topographic diversity** within each country and the area as a whole is very high, with exceptions of Italy and Serbia with plains in the north/northeast and moderate mountain ranges in the south. The area has a relatively **high proportion of forest** coverage. **Agriculture** is an important landscape-determining factor which in many cases (in areas such as the Po Valley in Italy, Vojvodina in Serbia, or Central Macedonia and Thessaly in Greece) also has a significant environmental pressure factor due to the discharge of nutrients and pesticides. Regarding the abstraction of fresh surface water per capita in the ADRION region, the highest volumes were observed in Greece (521 m<sup>3</sup> in 2007) and Serbia (506 m<sup>3</sup> in 2011), while the lowest were recorded in Croatia (133 m<sup>3</sup> in 2011).

Besides its rich biodiversity, the ADRION region is one of the richest regions in Europe in terms of **cultural diversity** with distinct traditions, languages, religions and architectural monuments ranging from antiquity to modern times. In the ADRION region there is a large number of sites under protection: 62 UNESCO World Heritage Sites in the area (55 Cultural, 5 natural and 2 mixed) covering a total of hectares 347.000, altogether creating a very attractive destination for tourism. Out of them, 23 are in the Italian regions, 19 in Greece, 7 in Croatia, 4 in Serbia and the rest in the remaining countries. The ADRION region also has diverse eno-gastronomic and artisan heritage: most of the participating regions have a long culinary tradition.

One of the most important sectors in the ADRION region is **tourism**, however it is still largely concentrated in the coastal resorts and is characterized by high seasonality, which generates several negative impacts on the environment. The whole area has a great potential for further development of cultural tourism in the main towns, most of which are part of the UNESCO heritage, and for sustainable tourism related to environmental assets. For the Adrion region to become more sustainable, it is desirable to take measures to integrate sustainable policies for the protection and enhancement of natural resources, landscape and cultural heritage.

Unfortunately, the extraordinary environmental ecosystem and cultural heritage of the ADRION area **suffer from two conflicting and distinct problems**: in some coastal areas, excessive pressure is exerted by the same tourist settlements; in some other, less important destinations, the natural and cultural heritage is not yet sufficiently enhanced or sometimes inaccessible (no public transport or inadequate road signs) or even closed to the public, or lacks “light” infrastructure (marked trails, information points, etc.). Furthermore, specialized services required not only for organized vacationers (individual tourists) but also for certain market niches (active tourists) such as hiking, trekking, horseback riding or biking are totally absent.

Focusing on viticulture and wine production, which are the subject of the ECOVINEGOALS, it was assumed that **viticulture** in the ADRION area is generally managed using intensive conventional systems with a large amount of chemical products and significant modifications of the traditional landscape. This has led to negative effects on soil, water and air quality, biodiversity and ecosystem services. In some regions, this has already triggered explicit or latent conflicts between the resident population, farmers, and local administrators, and has reduced the attractiveness of the areas for tourism activities. However, based on the research conducted in 7 pilot areas (see Figure 2 and [Reports on the results of landscape and habitat analyses for each pilot sites, 2021 – details in References](#)), it has become clear that there are actually **two opposing trends**: **i) the intensification of viticulture** (as assumed), and also **ii) the abandonment of viticulture**. Both trends lead to the impoverishment of traditional viticulture landscape in the ADRION region.

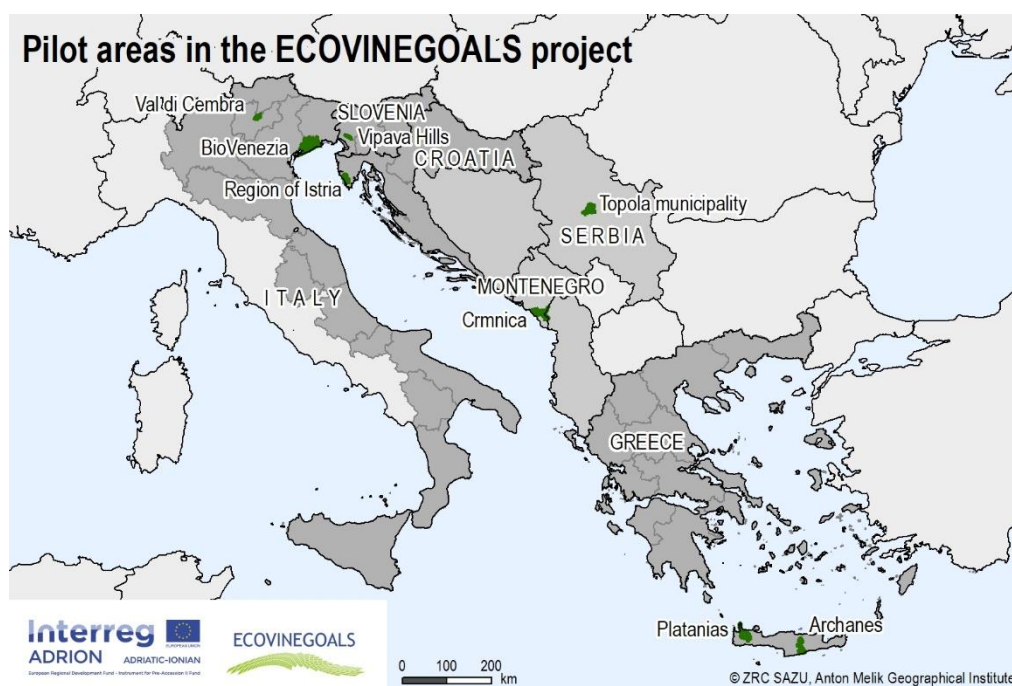


Figure 1: ECOVINEGOALS pilot areas in the Adrion region.

These two trends can be clearly seen on Figure 2, where we tried to rank each pilot area according to its degree of naturalness. The data were taken from the landscape analysis (see chapter 1.5 in [Reports on the results of the landscape and habitat analysis for each pilot sites, 2021 – details in References](#)). The GIS layer of naturalness was prepared based on land use categories combined as follows: i) natural areas (forests, moors and heathland, sclerophyllous vegetation, inland waters), ii) semi-natural areas (transitional woodland shrub, natural grasslands), iii) low intensity agricultural areas (olive groves, organic vineyards), iv) high intensity agricultural areas (arable land, conventional vineyards, fruit trees and berry plantations), v) built-up areas (developed land), and vi) man-made areas (road and rail networks, airports, industrial or commercial units and public facilities, discontinuous urban fabric). Thus, much of the actions will also need to address the maintaining practices that contribute to semi-natural and low-intensity agricultural areas. Otherwise, many cultivated landscapes will become overgrown with shrubs which, will affect the food supply and tourism potential of the ADRIAN region.

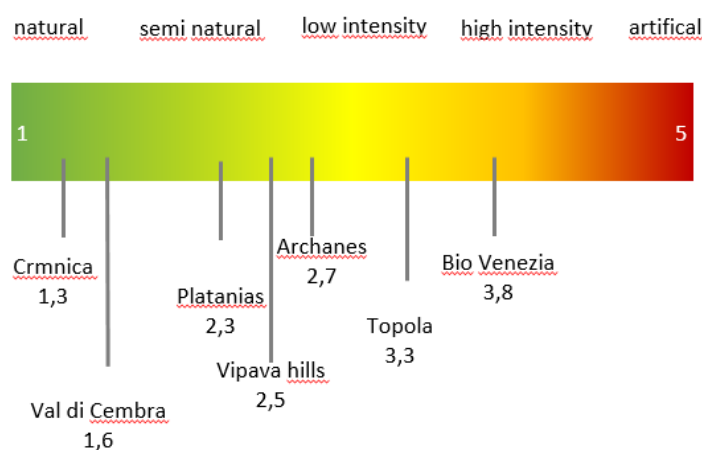


Figure 2: Level of naturalness of individual pilot viticulture landscapes in the ECOVINEGOALS project.

## OBJECTIVES AND ACTIONS NEEDED TO CONSERVE, PRESEVE AND IMPROVE VITICULTURE LANDSCAPES AND HABITATS IN THE ADRION REGION

The ECOVINEGOALS project envisaged three main documents to address the conservation of viticulture landscapes and habitats in the ADRION region: **1) the Strategy**, which includes strategic goals and information on the feasibility and potential barriers to achieving them; **2) the Action Plan**, which includes clear actions and steps to achieve the objectives, as well as indications to be considered by relevant policy and decision makers; and **3) the Guidelines**, with recommendations for policy makers at local, regional, and national levels, as well as for winegrowers and other stakeholders contributing to the enhancement of viticulture landscapes and habitats. The interaction between these three documents is shown in Figure 3.

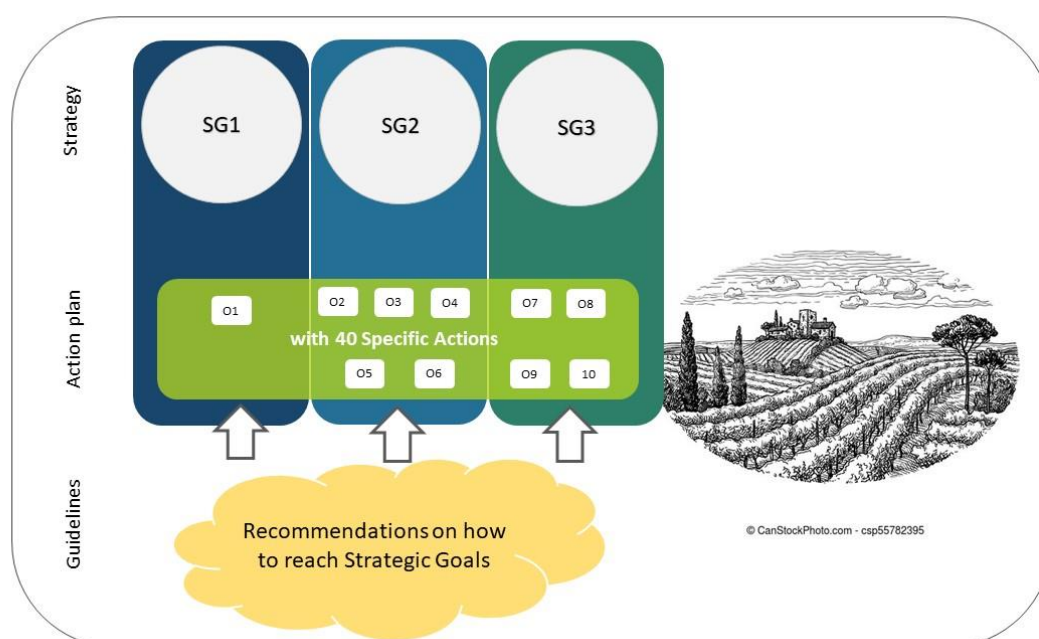


Figure 3: The interaction of the Strategy, the Action Plan and the Guidelines for the conservation of viticulture landscapes in the ADRION region in the ECOVINEGOALS project.

With the Action Plan, the following **10 objectives with 40 related actions** were identified on 7 ECOVINEGOALS pilot areas that contribute to the conservation, preservation and improvement of viticulture landscapes and habitats.

### **Objective 1: An urgent need to collect better GIS data**

It was anticipated that the landscape analysis could be based on the Corine Land Cover database. However, while conducting research analyses on specific pilot areas in several participating countries, this database proved inadequate as in many countries vineyards are included in the 'mixed agricultural areas' category or small vineyards are not included in the layer. Organic vineyards posed a special challenge, GIS data on this exist in only a few countries.

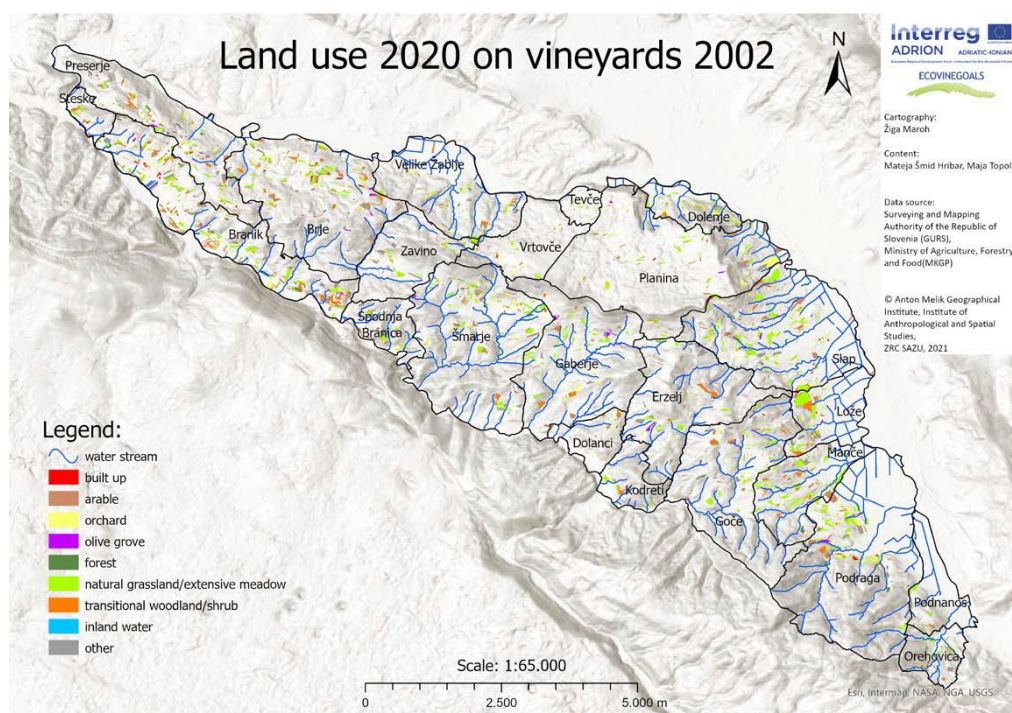


Figure 4: An example of a map based on GIS data indicating land use changes and overgrown vineyards in the Vipava Valley in 2020.

### **Actions to be taken**

#### **• Short-term action (1-2 years)**

##### **Create a GIS layer on conventional and organic vineyards**

For those countries in the ADRIION region that do not yet have a reliable and up-to-date GIS layer on conventional and organic vineyards, one should be established as soon as possible. This is the basis for any further viticulture landscape management and planning.

#### **• Medium-term action (3-5 years)**

##### **Building relationships with local research institutes**

To solve the problem of the lack of GIS data in the long term, it is important to build lasting relationships with local research institutes that are able to collect valuable and accurate GIS data and support winegrowers with other geographic data (i.e. landscape analyses, demographic analyses, etc.). In the era of climate change, this will become increasingly important.

#### **• Long-term actions (6-10 years)**

##### **Continued work on landscape and other GIS analyses**

Continue to collect GIS and other crucial data needed for viticulture landscape management and grower support.

### **Objective 2: Preventing the overgrowth of viticulture landscape**

Some landscape analyses of land use show that viticulture landscapes are becoming overgrown (e.g., Report on the results of landscape and habitat analysis for the Vipava Hills 2021). In some cases, new vineyards are being established, but at lower altitude agricultural land (mainly meadows and arable

land), while vineyards at higher altitude and sloping land are becoming overgrown. This trend is unfavorable due to the loss of high-quality agricultural land for the cultivation of cereals and vegetables, while at the same time it leads to overgrowth and thus to a loss of agricultural land, on which it is difficult or even impossible to grow crops other than vines and perhaps fruit and olive trees. In addition, growing grapes at lower altitudes is easier and cheaper, but here they are also more susceptible to disease (higher humidity, higher probability of frosts, and lower insolation), which is why they tend to be more intensively cultivated. All this leads to a loss of provisioning ecosystem services, and at the same time biodiversity is usually lost as well. It is therefore essential to take measures to prevent overgrowth of vineyards at higher altitudes.

### **Actions to be taken**

- **Short-term action (1-2 years)**

#### **Developing communication materials to raise awareness and control mechanisms to prevent land abandonment**

Land abandonment is not just a problem of villages and people owning that land. It is an issue of future generations who need to think about this valuable resource in time. Awareness-raising programmes and control mechanisms should be developed to raise awareness of landscape preservation and reduction of land abandonment. The importance of land and its preservation, as well as the landscape will be embedded in different modules for the categories from kindergarten to professional land use inspectors. The key target groups are: teachers and pupils, university students (particularly from the agricultural and wine sector), local residents (particularly farmers), municipality staff. Respectively, information and communication materials should be prepared, adapted to the needs of each target group.

#### **Up-to-date overview of the state of overgrowth of vineyard land, list of interested parties in renting vineyard land, and monitoring of the situation**

Preparation of GIS data on overgrown and no longer existing vineyard areas from the past (map of overgrowth). Identified land to be verified in the field and its use to be recorded. In addition, the owners are added to the register and informed about the situation and the measures to be taken (agricultural cultivation, renting out, proposal for a higher tax in the event of overgrowth). In parallel, the municipality maintains a list of winegrowers looking for and wishing to rent or buy vineyards or land suitable for vineyard cultivation. The key target groups are: farmers and winegrowers, municipal staff, land registry offices, landscape planning officers, and state planning services.

- **Medium-term actions (3-5 years)**

#### **Specific “land-offering market”**

It has become apparent that some vineyard land is becoming overgrown because it is owned by a large number of owners who no longer wish to cultivate vineyards, or in some cases heirs who cannot agree on a sale/lease or are abroad and no longer interested in their vineyard plots. In such areas, specific “land-offering market” should be initiated, where a special service (perhaps at the municipality) would help to connect owners (in some cases numerous heirs) who no longer want to cultivate land, with interested parties.

- **Long-term actions (6-10 years)**

### **The establishing of new vineyards**

The establishing of new vineyards on the land of abandoned vineyards and vineyard land being overgrown or under forests should be carefully planned and supported.

### **Introduction of direct agricultural payments for the cultivation on terraces**

Similar to the existing agricultural payments for disadvantaged areas, payments for the cultivation of vineyards on terraces should also be introduced. The cultivation of vineyards on terraces is a much greater financial burden and the physical labour is also harder than the cultivation of vineyards on the flat lands. Therefore, the search for and training of labour force should be addressed. On the other hand, it is this terraced and sloping farmland that is best suited to vineyards (and orchards and olive groves), as it is at a higher altitude and growing vegetables is much more difficult, if not impossible. Therefore, the flat land (at lower altitude) in the valley bottom should be left for arable land.

### **Objective 3: Diversification, restoration and enhancement of viticulture landscapes**

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In cases where viticulture landscapes are intensively cultivated (such as BioVenezia in Italy), such landscapes tend to become monotonous with little perennial vegetation in order to minimize competition with crops and not hinder mechanization. In such cases, diversification through the planting of wooded areas and the development of tourist-recreational activities in these landscapes (food and wine routes suitable for slow mobility) is highly recommended.



Figure 5: Grazing small livestock in the vineyard is one of the good agro-ecological practices of viticulture.

### **Actions to be taken**

- **Short-term action (1-2 years)**

#### **Planning for a more diversified viticulture landscape**

It is necessary to examine which landscape features and vegetation, such as isolated trees and the

like, constitute traditional viticulture landscapes. Once this is known, planning should be done how to introduce these features and vegetation into the current monotonous and intensified viticulture landscape to make it more natural. The stakeholders who should be involved in such planning are researchers (particularly geographers, ecologists, foresters, agronomists, landscape planners, and similar), landscape planners, agricultural consultants, farmers and winegrowers.

- **Medium-term action (3-5 years)**

**Definition of specific landscape characteristics to be used in defining viticulture landscapes**

Specific viticulture landscapes are one of the main characteristics of the wine-growing area, enabling production of high quality wines. In order to ensure the preservation of this important component and to support further development of the area (including grape cultivation and wine production), this activity is directed towards the detailed definition of landscape characteristics, their official recognition as territorial features to be protected and used in future spatial planning and/or definition of wine-growing regions. This is a policy/regulation development activity – to achieve long-term objectives/visions for the protection of the viticulture landscape. Stakeholders who should be involved in such planning are researchers, landscape planners, agricultural consultants, farmers and winegrowers, and nature conservation representatives.

**Restoration of dry-stone walls**

Farmers are encouraged and supported in repairing stone walls and planting terraced vineyards and they are informed about their importance to the landscape and biodiversity conservation. Training is organised on the techniques used to build stone walls and plant terraced vineyards. Training could be provided by specific organisations such as the Karst Dry Stone Wall Partnership (2022). Offering training on a regular basis could help ensure continuity and long-term effects.

**Planting and introducing new land uses**

Planting new vegetation using native species and encouraging the establishment of new close-to-nature landscape features and land uses. Actions should be implemented by farmers and winegrowers in cooperation with researchers, agricultural consultants, foresters, and nature conservation representatives.

- **Long-term actions (6-10 years)**

**Planting and introducing new land uses**

Continue planting new vegetation using native species and introduce new close-to-nature landscape features in order to disrupt the homogeneity of the landscape and create new ecological corridors and habitats that enhance biodiversity. Actions should be carried out by farmers and winegrowers in cooperation with researchers, agricultural consultants, foresters, nature conservation representatives.

**Revitalisation of old vineyard terraces as a unique landscape feature of high historical and natural value**

One of the most valuable features of viticulture landscape are terraces, which are not only part of the natural heritage, but also a significant element of the tangible and intangible cultural heritage (the techniques for cultivating the terraced method can also be considered part of the local heritage). Support should be provided for the replanting and cultivation of abandoned vineyards planted in terraces. Special courses could be offered to farmers, winegrowers and other interested local residents. This long-term activity aims to contribute to the revitalisation of terraced vineyards for

wine production, as well as the preservation of habitats for endangered species and cultural heritage.

#### **Objective 4: Biodiversity conservation**

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Where possible, particularly in viticulture landscapes that are strongly characterised by well-preserved nature, such as preserved areas, Natura 2000 sites, natural heritage sites, and other sites of high naturalistic value, biodiversity conservation linked to viticulture and agroecology must be emphasised and synergies should be sought. Conservation of nature and biodiversity should be seen as an advantage rather than a threat, even if protection imposes certain constraints on land management. However, in pilot areas (such as the Vipava Valley), it turned out that such nature areas, which are important for biodiversity, are hardly known by local stakeholders (many winegrowers do not even know whether their vineyards are part of the Natura 2000 site or not). Therefore, it is important to produce maps of vineyards and nature areas (e.g., Natura 2000 sites), organise a lecture on this topic to raise awareness and increase the visibility of nature conservation areas among local people and representatives of key institutions. The stakeholders (mainly landowners) would like to see more discussions on finding synergies with the management of the nature conservation areas. It would also be useful to include Natura 2000 as a nature conservation brand in the marketing programme and the creation of value-added products based on biodiversity conservation. It should be pointed out that the wine comes from areas rich in biodiversity.

#### **Actions to be taken**

- **Short-term actions (1-2 years)**

##### **Enhancement of biodiversity in viticulture landscapes**

Permanent grassland in vineyards creates a more attractive and restful landscape, similar to a pasture or meadow. In order to optimize the positive effects, they produce, they must be managed with respect for the natural cycle of the species, so that the life cycle of the plants, at least in some parts of the vineyards, is completed with flowering and the production of seeds. This management of grassland balances production with biodiversity conservation in the vineyard. Actions should be carried out by farmers, winegrowers and producers' associations in cooperation with researchers from agro-environmental research institutions, agricultural consultants and environmental institutions.

- **Medium-term actions (3-5 years)**

##### **Awareness-raising and advocacy activities to protect key landscape features that are crucial for the maintenance of the local microclimate**

The activity aims to collect data on microclimate changes in recent years and use these to define an awareness-raising and advocacy campaign directed towards institutions in charge of spatial planning. In addition, landscape protection regulation should also be defined at the local level in order to protect the main features of viticulture landscapes. This could be done through targeted research projects, and the main stakeholders for this activity are researchers in cooperation with farmers, winegrowers, producers' associations, agricultural consultants and municipalities.

##### **Buffer areas**

In highly intensified viticulture landscapes, it is important to create buffer areas between the cultivated areas and the remaining natural areas to protect the fauna that lives there (in small isolated natural areas). This will create wildlife refuge and nesting areas, which will increase

biodiversity and heterogeneity of the landscape. The use of native vegetation should be encouraged and arranged in such a way as to create areas of decreasing height. These measures should be implemented by farmers and winegrowers with the support of agricultural consultants and landscape planners.

- **Long-term actions (6-10 years)**

**Payments for ecosystem services for the cultivation of vineyards at higher altitudes and in Natura 2000 sites**

Higher altitude, windswept and sunny sloping positions are more favourable for grape ripening and organic vineyard cultivation. The lower altitude areas are easily accessible by machinery, which makes them much easier to cultivate, but they require a greater use of fertilisers and plant protection products because of the higher humidity and the consequent risk of disease, pests and frost. On the other hand, these areas are lost to cereal and vegetable cultivation. We propose that the respective policy-makers and local decision-makers provide subsidies for the areas protected by Natura 2000 and to the preservation of traditional vineyard landscapes or higher altitude and sloping areas (between 100 and 350 m above sea level). These require terracing or the preservation and maintenance of terraces, more manual labour (options that involve more manual labour should be additionally explored) and are more difficult to access with machinery, but are therefore more sustainable and have less harmful effects on the environment. It is only there that the distinctive bedrock comes to the fore, producing wines that cannot be found anywhere else. The recognition of the uniqueness of the local wine produced strengthens the market value of the region and has the potential to increase the economic turnover – thus it could be a strategic point for economic planning and establishing the ADRION wine region(s) brand, known for its traditional roots and organic quality (as further elaborated in Objective 7). Part of the budget can be used to fund educational activities on organic farming and to increase the networking of actors in the region, such as the Agroecological Vineyards Network – AVINE, which is a result of the ECONVINEGOALS. The aim of this network is to capitalise on the results and outputs delivered by the project. The signatories express their intention to continue cross-border cooperation in order to find solutions that reconcile agricultural production with biodiversity conservation, habitat and landscape maintenance and restoration at different scales, to combat environmental vulnerability, fragmentation, to safeguard ecosystem services, promote participatory governance activities and support agroecology in the Adriatic-Ionian region.

**Protecting existing natural areas from uncontrolled urbanization and unsustainable and illegal use of natural resources**

This is a very important preventive activity needed to control urbanization and unsustainable and illegal use of natural resources in the long term. Therefore, this activity proposes stricter control procedures followed by higher fees, adoption of regulations to control urbanization in the ADRION region, but also other activities such as waste disposal, fishing, hunting, tree cutting, etc. The main stakeholders responsible for the implementation and/or protection of the existing natural areas are the authorities of the protected area, the Ministries of Environment and Spatial Planning, the environmental institutions and the municipalities.

**Objective 5: Management of viticulture landscapes and natural resources in a long-term sustainable and environmentally friendly manner**

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This objective summarizes activities related to the incorporation of environmental protection principles into viticulture and the wine-making industry and the adoption of

agroecological/organic/sustainable practices. Furthermore, it focuses on the comprehensive protection of natural resources, such as the prevention of soil degradation and desertification and other forms of pollution, the prevention of risks related to the loss of biodiversity and genetic resources in viticulture, the valorisation of preserved landscapes as certified organic agriculture develops, the preservation of traditional but effective and sustainable farming practices, etc.

## **Actions to be taken**

### **• Short-term action (1-2 years)**

#### **Efficient and sustainable use of natural resources (soil, climate of the area, water)**

The activity involves all actions taken to promote and support the application of agroecological practices that can be used in viticulture, but also in other cultivations for the efficient and sustainable use of natural resources. The [ECOVINEGOALS Catalogue of Good Practices](#) (2020) should be shared with the farmers, winegrowers and agronomists, as well as all relevant authorities who may support and promote their adoption.

#### **Efficient use of agricultural water resources through the introduction of deficit irrigation**

This activity aims to provide knowledge and skills on the need for irrigation in wine growing and its benefits, while taking into consideration efficient water usage, fertilization opportunities, soil fertility enhancement, etc. The main stakeholders of this action are farmers, wine-growers with the support of agricultural consultants, research institutions, municipalities and ministries (of agriculture and of environment) who should help provide know-how.

### **• Medium-term action (3-5 years)**

#### **Reducing runoff and soil erosion by planting natural ground covers and restoring of dry-stone walls and terraces**

This is a very important activity, taking into consideration that agricultural areas located within the hilly areas are scattered. Therefore, there are two scopes of activities – one that deals with the old-fashioned skills of building and restoring dry-stone walls, and another that considers the importance of natural ground covers for the long-term improvement of soil fertility and the preservation of biodiversity in the area. The main stakeholder of this action are farmers, wine growers with the support of agricultural consultants, research institutions, municipalities and ministries (of agriculture and of environment) who should help provide know-how.

### **• Long-term actions (6-10 years)**

#### **Synergy and support of relevant institutions, research & development, and decision makers**

Farmers often claim that there is no strong cooperation between them and relevant research and development bodies. Also, there is an evident gap that causes numerous problems when it comes to new technologies and contemporary practices that should be implemented in vineyards. Therefore, this activity aims to expand this cooperation in order to open a new spectrum of funding sources and possibilities for farmers. There are many research and academic institutes across the ADRION region which practitioners should seek long-term collaboration with. Networking and collaboration between all these organizations/institutes, as envisaged in the AVINE network (or similar smaller regional networks in the ADRION countries), will enable the sharing of information and the development of projects that can support experimentation that is very important for agroecological transition and sustainable management of natural resources in the areas. Visiting

vineyards is also expected to have positive effects in the ADRION region.

### **Objective 6: Promoting organic and/or integrated crop management and the spread of agro-ecological practices**

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Organic farming and agroecological practices are an opportunity for healthy and sustainable food production. Agroecology as a science, as a set of practices, and as a social movement is in constant interaction with other agricultural production systems and practices that seek solutions for a more sustainable farming and food system. All solutions based on natural and ecological processes that are equitable, environmentally friendly, locally adapted and controlled should be considered, analyzed, tested and evaluated under the key principles of agroecology. The European Commission, through the Green Deal and the Farm to Fork Strategy, has set a target of allocating at least 25% of EU farmland to organic farming and to significantly increase organic aquaculture by 2030. In the light of this priority, it is appropriate to promote and increase knowledge of these agricultural practices at local level.

#### **Actions to be taken**

- **Short-term action (1-2 years)**

##### **Institutionalization of agroecological practices**

A holistic approach to spatial planning is a relatively new trend in many parts of the ADRION region. Planning documents in several countries very often only react to changes, and do not provide ideas and solutions for sustainable development. Agroecology and landscape protection are not new to them, but often these important principles are not prioritized. According to the French researcher Stéphane Bellon, the debate on the feasibility of institutionalizing agroecology involves various stakeholders: researchers, farmers and social movements, as well as administrators of public policies. Moreover, international institutions such as the FAO are promoting agroecology to address the major challenges of sustainable development: food security, biodiversity loss, and climate change. However, more needs to be done at different levels (academic, social movements, farmers) through a transdisciplinary, participatory and action-oriented approach to fully unlock the potential of agroecology and to create and circulate knowledge that improves farmers' know-how and skills to "act with nature." Through training and interactive processes interested stakeholders will be empowered to influence future spatial plans and other planning documents in order to preserve and maintain valuable landscapes. Interdisciplinary teams will also contribute to the protection of biodiversity and sustainable tourism potentials.

- **Medium-term action (3-5 years)**

##### **Increasing the areas under certified organic vineyards with contemporary practices**

Landscape analysis revealed that organic vineyards (with some exceptions) are still rare in the ADRION region. Even though various ecological practices were implemented, there are still no officially recognized organic vineyards. Therefore, this activity aims to encourage farmers to initiate the process of organic agriculture certification, as well as relevant public stakeholders (mainly relevant ministries) to solve complicated bureaucratic procedures. It also aims to provide farmers with quality schemes such as the "Protected designation of origin", but this requires a competent coordination team of staff from relevant ministries, municipalities, agricultural advisors and research institutions.

- **Long-term actions (6-10 years)**

**Continue to encourage the establishment of or transition to organic viticulture.**

Continue to encourage farmers to initiate the process of organic agriculture certification.

**Objective 7: Training and counselling to raise awareness of the importance of viticulture landscape**

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Countryside has long been considered of great importance but national and regional agricultural policies tended to focus only on the economic aspects, while neglecting all natural and historical/cultural values, as well as intrinsic/aesthetic values. On the other hand, until recently, heritage preservationists had until recently focused on archaeological sites and monuments, dealing with the landscape as a background rather than an important element. Therefore, building a permanent training system with different stakeholders and creating and sharing knowledge about the importance and the special value of traditional viticulture landscapes is a stepping stone for the success of any local action plan for landscape preservation. It is also important to understand that the study areas are very popular tourist sites. This is why it is important to consider that viticulture landscape is perceived as aesthetically pleasing and worth visiting, along with the fact that the residents of these areas, who are also responsible for maintaining the substance of the landscape, do not always share the views of tourists-visitors. The main target groups for this activity are: local people, teachers and pupils, students, farmers and winegrowers, staff from municipalities.



Figure 4: Natural characteristic of a viticulture landscape should be seen as an advantage rather than a threat, even if its protection brings certain constraints on its management.

## **Actions to be taken**

- **Short-term action (1-2 years)**

### **Annual events in the local community to raise awareness of landscape protection processes and foster activism**

Organisation of events, trainings, round tables, workshops, games for teenagers, competitions, etc. targeting all stakeholders in the study areas in order to raise their awareness of the importance of the cultural landscape and the Natura 2000 sites. Special emphasis should be placed on biodiversity in the vineyards and in the practices used for the landscape enhancement and biodiversity conservation. Awareness raising is closely linked to the prevention of overgrowth, the enhancement of biodiversity conservation, and the decisions that are made in regard to land use. The key stakeholders that should help with awareness raising are environmental institutions, agricultural consultants and researchers.

### **Developing educational programmes on biodiversity and landscape protection**

Biodiversity and landscape preservation are the key topics for the future of the preservation of the pilot area and the implementation of agroecological practices. Therefore, early education as well as education at all levels (as mentioned in the previous activity) could bring these topics to the focus and make them contribute to the whole area. Secondary school teachers, together with other relevant stakeholders (environmental institutions, agricultural consultants and researchers), will prepare different modules of the educational programme that could be used in the formal and non-formal educational system. Once developed, this programme could be shared with other regions as good practice and included in the official curriculum. The development of educational programmes on the importance of landscape preservation will improve ecosystem services, the development of tourism potential, and also the economic / local employment aspects.

### **Short lectures and talks several times a year on specific cases of Natura 2000 sites**

Short events with a presentation of Natura 2000 sites where the locals would learn more about Natura 2000, the status (conservation) of habitat types and species in viticulture areas, good practices in Natura 2000 conservation and viticulture, and the challenges they face. The following questions should be asked: Is the conservation of Natura 2000/habitat types in a viticulture area favourable, unfavourable, poor or unknown? What is the relationship between Natura 2000 and viticulture practices, where is the situation favourable, where are the problems, etc.? It is suggested that this action be carried out in cooperation with agricultural advisors who know and present the agricultural and environmental aspects, and with nature conservationists (from organisations dealing with nature protection), who are competent in issues of nature conservation and Natura 2000. Such lectures should be organised by environmental organisations and research institutions.

- **Medium-term action (3-5 years)**

### **Setting up a participatory landscape observatory – territorial registry in the areas to support knowledge, conservation and promotion of the cultural landscape**

The action includes the establishment of a participatory Landscape Observatory to serve as a tool for better protection, management and planning of the landscape in the framework of sustainable development. Key activities are the GIS mapping of areas using accurate up-to-date data, establishing a repository to store and manage data on landscape and land use, identifying landscape values through a participatory process, organising training, dissemination, and other activities (e.g., photo contests, ecotourism, etc.) to raise awareness of the multiple functions and values of the

landscape in the regional capital. The Landscape Observatory can play the role of a center for studying and monitoring landscape development, which can also initiate projects/studies on relevant topics. It will adopt a participatory approach encouraging multiple stakeholders to participate and work together. Key stakeholders to be involved are municipalities and other regional authorities, public bodies such as the Land Registry Office, research institutes, collective bodies such as farmers' groups, key players from the tourism sector, and the general public.

- **Long-term actions (6-10 years)**

#### **Establishing a permanent training system**

This activity aims at solving the problem related to farmer's misunderstanding of the concept of agroecology, landscape and habitat conservation. Therefore, it is urgent to establish a permanent training system to accompany farms on the path of agroecological transition and to look for forms of interaction and collaboration, in particular with the tourism sector, agri-food trade and crafts, in order to create networks between companies and territorial agreements. The responsible government bodies and educational units should be included in the process of knowledge improvement and awareness raising among interested stakeholders. The idea is to create a permanent body at a local level didactic and scientific support for the agroecological transition. This association body, promoted by local farmers and stakeholders, is made up of individuals with relevant knowledge from universities, research institutes, freelance professionals, extension services, and agricultural sector organizations. The training body should be eligible to use financial resources from the European Social Fund. As part of the training and counseling activities for farmers, special focus will be dedicated to raising awareness of the importance of maintaining of the traditional landscape and biodiversity, as well as intervention capacities. Landscape and agricultural biodiversity are closely related. This relationship is often complex, as agricultural biodiversity contributes to the formation of the landscape, and landscape variations influence biodiversity in a co-evolutionary process. There are strong links between the structural aspects of the landscape, the functions of the ecosystems that compose it, and landscape functions. From an ecological point of view, it is not only the presence or absence of certain landscape elements that is important, but also their spatial configurations, i.e. the shape, size, distance, and degree of connectivity between the different elements. A heterogeneous landscape, complex from an ecosystem point of view, usually has a greater variety of habitats, greater floristic, faunal, and agricultural biodiversity, and consequently greater multifunctionality and, in some cases, greater aesthetic/ perceptual value. This training system should be developed by a research institution together with producer associations and a consortium, agricultural counsellors, environmental organisations and local tourist agencies. It should be locally based.

#### **Objective 8: Linking viticulture landscapes with tourism**

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Traditional viticulture landscapes and their spatial features are particularly attractive to visitors due to their high degree of naturalness, mosaic structure and good recreational opportunities (e.g. cycling, electric and pedal bicycles, hiking). Nevertheless, they are not fully valued, and some of them are threatened by various factors. Therefore, agroecological transition will create conditions and specific valorisation options for landscape and spatial features that will become an important part of regional tourism offer. Winegrowers, caterers and accommodation providers could make better use of this advantage and improve the current tourism offer. To achieve this, they need to better understand their landscape and the opportunities it offers. The following actions to achieve this objective provide information on stakeholders that could improve the link between viticulture landscapes and tourism.

## **Actions to be taken**

- **Short-term action (1-2 years)**

### **Preparation of a brochure about the wine-growing area of the Vipava Hills**

Selection of cartographic and pictorial material from selected viticulture landscapes, preparation of the text with key messages and formatting into an attractive publication. This could be done by local tourist agencies, development agencies and/or farmers and winegrowers with support from research institutions (for valuable GIS material).

- **Medium-term action (3-5 years)**

### **Analyses of the route system and establishment or renovation of the wine routs with natural and cultural heritage designation**

There are numerous wine routes in the Adrion region, but many of them are outdated and in need of renovation. The system of wine routes needs to be analysed and reviewed by local tourist agencies, development agencies, the map needs to be updated, partnerships and effective agreements need to be made with owners on the schedule when wine cellars are open (to be spread over the days across the selected viticulture landscape). Owners need to be provided with quality and specific material about the selected viticulture landscape. The development of new wine routes should be done in cooperation with farmers and winegrowers and should be combined with visits to places of specific environmental, cultural, and historical importance.

- **Long-term actions (6-10 years)**

### **Identification of potential ecosystem tourist offer for the existing and new valuable sites and viticulture landscapes**

Working with relevant research institutions, respective tourism policy makers, and other stakeholders such as environmental organisations and protected area authorities to identify and evaluate ecosystem services that can be used as a basis for a tourism offer. These will be integrated with the existing ecosystems and will support their preservation in viticulture landscapes (tourism offer integrated as ecotourism, e.g., viewpoints, establishing biking and hiking trails in line with landscape preservation, marking and tourism valorisation of religious objects, climate adaptation in agricultural landscapes, etc.).

## **Objective 9: Territory branding and promotion**

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Initiatives to identify a brand and a territorial organization that enhances and promotes the tangible and intangible resources of viticulture landscapes, such as agricultural and handicraft products, cultural, landscape and environmental heritage, in a context of authenticity and respect for local particularities.

## **Actions to be taken**

- **Short-term action (1-2 years)**

### **Mapping, protection and promotion of viticulture landscapes**

Many traditional viticulture landscapes are part of the historical heritage of the countries across the ADRIAN region. The valorisation of viticulture landscapes can be done by facilitating a participatory process in order to define a specific tourist product based on the revitalisation and preservation of

the landscapes and heritage of selected areas.

- **Medium-term action (3-5 years)**

**Valorisation of specific local products with added value**

Traditional viticulture landscapes tend to have many specific products that may not yet be fully valorised. Wines have made a big step towards valorisation, but in many areas other products still need to be valorised. This activity should focus on the recognition and valorisation of these products, through the development of certification procedures and special attention to the sustainable use of the resources and landscapes, defining a regional label that will serve as an umbrella for the valorisation of the products characteristic of the area. The formation of a body (association or, for example, the above mentioned AVINE network established under the ECOVINEGOALS project) to lead and manage this process will be the first step, while the participatory guarantee system and the definition of the specifications of the products to be labelled could be a joint effort.

- **Long-term actions (6-10 years)**

**Production and marketing of local high-quality wine associated with viticulture landscapes protected as Natura 2000 sites**

In cases where a large part of the viticulture landscape is protected by Natura 2000, this fact gives an important character to this landscape. It should be seen as an asset rather than a constraint, and highlighted at every opportunity. In cases where there is a high proportion of Natura 2000, a programme for the production and marketing of local quality wine connected with the protection should be drawn up to integrate Natura 2000 into the marketing programme, from wine sales to destination marketing. This could be done in collaboration with competent tourism strategy makers, and staff from environmental organisations and/or protected area authorities.

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**Objective 10: Facilities and infrastructures useful for the community**

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Identification of a coordinated set of initiatives to create, adapt, and maintain structures and infrastructures, public and private, that contribute to the enhancement and use of less developed viticulture areas by communities and their guests.

**Actions to be taken**

- **Short-term action (1-2 years)**

**Initiatives for territorial planning**

The action aims to reorganize what already exists in viticulture landscapes in the ADRION region and to plan the necessary elements for the enhancement and promotion of the tangible and intangible resources of the viticulture landscapes. In many areas, there is a need for interoperable trail and road connections between municipalities. This is the most obvious deficiency of the area, which, in fact, does not allow for the enhancement of the area, even from a tourist point of view. Consequently, with the strengthening of the existing road axes, it is possible to create landscape-environmental and historical-cultural paths and itineraries. At the same time, permanent ordinary and extraordinary maintenance of the rural road network with a multifunctional logic is required. With this action, a real enhancement and networking of historical-cultural structures will be implemented. In accordance with the themes identified by the ECOVINEGOALS project, the AVINE network will promote participatory processes and institutional innovations through knowledge

sharing, contributing to relevant and inclusive agroecological transition processes, harmonization of legislation and development of agroecological practices, as well as landscape and habitat protection.

- **Medium-term action (3-5 years)**

**Development and improvement of infrastructure to support wine tourism**

These activities are related to the annual plans and programmes of the local authorities, the local community and the local tourism board in order to allocate more resources for the improvement of public infrastructure (wider and better road system, secure electricity and water supply, regulated waste and waste water disposal, signage, WiFi network, etc.). Infrastructure is certainly a prerequisite for the development of wine tourism in hilly areas. However, sustainable business practices in wine tourism are key for all stakeholders involved. The relevant authorities hold responsibility to improve/create infrastructure that can facilitate the development of wine tourism and other diversified activities without jeopardizing environmental sustainability.

- **Long-term actions**

**Encouraging the use of existing buildings**

In cases where an agricultural area has numerous abandoned and often unsafe buildings that constitute an element of landscape degradation that will have to be addressed through redevelopment and / or demolition actions. The action is particularly important in light of the progressive loss of arable land to the detriment of other uses, and could be linked to the renting of land (vineyards). The relevant stakeholders forseen for the implementation of this activity are the municipal and regional authorities as well as farmers and winegrowers.

### 3 CONCLUSIONS

In this document, we have presented 40 potential actions to achieve 10 objectives and 3 strategic goals to conserve or rather preserve viticulture landscapes and habitats. It should be noted that many actions overlap and it is imperative that key stakeholders interact to promote change for more sustainable viticulture landscapes in the ADRION region. However, we would like to highlight three actions that are crucial to the achieving of the strategic goals: **1) Collection of reliable data, especially GIS, on viticulture** – to manage viticulture landscapes, one must know the types of vineyards, their locations, their contribution (or detriment) to the landscape in which they are embedded, the natural landscape, conditions, and the relationships among winegrowers, other stakeholders and the public; **2) Act to maintain or restore biodiversity in viticulture landscapes**, which does not mean having forests between vineyards, but rather farmers and winegrowers adopting agroecological practices that bring what is known as agrobiodiversity, which also provides additional food, and **3) Awareness raising and knowledge transfer** among the different stakeholders to help people understand the viticulture landscapes and enable them to change their behavior (whether they are willing to buy more expensive local wine produced in more natural areas or are brave enough to switch to organic production).

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- Report on the results of landscape and habitat analysis for Bar. Deliverable T2.2.2. 2021.
- Report on the results of landscape and habitat analysis for Platanias. Deliverable T2.2.2. 2022.
- Report on the results of landscape and habitat analysis for Archanes. Deliverable T2.2.2. 2022.

## APPENDICES

**A1 Local action plan for conservation of landscape and habitats in viticulture areas and for valorisation of ecosystem services in BioVenezia**

**A2 Local action plan for conservation of landscape and habitats in viticulture areas and for valorisation of ecosystem services in Val di Cembra**

**A3 Local action plan for conservation of landscape and habitats in viticulture areas and for valorisation of ecosystem services in Vipava hills**

**A4 Local action plan for conservation of landscape and habitats in viticulture areas and for valorisation of ecosystem services in Region of Istria**

**A5 Local action plan for conservation of landscape and habitats in viticulture areas and for valorisation of ecosystem services in Topola Municipality**

**A6 Local action plan for conservation of landscape and habitats in viticulture areas and for valorisation of ecosystem services in Bar**

**A7 Local action plan for conservation of landscape and habitats in viticulture areas and for valorisation of ecosystem services in Archanes and Platanias**



# Ecological Vineyards Governance Activities for Landscape's Strategies

Deliverable T2.3.1

## LOCAL ACTION PLAN FOR CONSERVATION OF LANDSCAPE AND HABITAT IN VITICULTURE AREA AND FOR VALORISATION OF ECOSYSTEM SERVICES

Responsible Partner

**LAG Eastern Venice, VeGAL (IT)**

**31/05/2022**

## **BASIC PROJECT INFORMATION:**

PROGRAMME CALL: INTERREG V-B Adriatic-Ionian ADRION

Project Acronym ECOVINEGOALS

Project Number: 866

Programme Priority Axis: 2

Start – End Date: 01.03.2020 – 31.08.2022

Total budget: EUR 1 939 505.59

ERDF: 1 399 759.25 IPA: 248 820.5

**Lead Partner Organisation: LAG Eastern Venice, Italy**

**Url:** [www.ecovinegoals.interregadrion.eu](http://www.ecovinegoals.interregadrion.eu)

## **DOCUMENT INFORMATION**

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<b>Dissemination Level</b>	PP (Partnership document)

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May, 2022

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## **Project Summary**

ECOVINEGOALS promotes sustainability and resilience in the winemaking industry by encouraging the transition of intensive viticulture towards agro-ecological management systems that protect natural habitats and landscapes, while reducing chemical and fossil fuel inputs and harmful emissions. The project aims to enhance stakeholders' skills in participatory local governance, to strengthen transnational cooperation and provide specific transnational instruments to promote, support and manage the agro-ecological transition.

### **Expected results**

- Sharing between partners in the ADRION countries of fundamental concepts and practices necessary for the transition from intensive viticulture management systems towards agro-ecological management methods.
- Improvement of the participatory local governance skills of decision makers and all other viticulture stakeholders, both public and private, to jointly develop and define strategies and plans aiming to protect natural habitats and rural landscapes.
- Transnational communication, cooperation, and exchange between regional authorities and civil society organizations concerning common objectives to protect vulnerable environments, to promote ecosystem services, to prevent or mitigate climate change, and to avoid social conflicts in land use.
- An increase in the number and quality of tools and strategies available to support the planning and management of the agro-ecological transition of viticulture systems in the region.

### **Partnership:**

<b>PP1- LP</b>	<b>LAG EASTERN VENICE, VEGAL (IT)</b>
PP2	Autonomous Province of Trento, PAT (IT)
PP3	Chamber of Agriculture and Forestry of Slovenia, KGZS-Zavod GO (SI)
PP4	Research Centre of the Slovenian Academy of Sciences and Arts, ZRC SAZU (SI)
PP5	Agency for Rural Development of Istria Ltd Pazin, AZRRI (HR)
PP6	Association for the promotion of employment, vocational training and education, INFORMO (HR)
PP7	Business Development Center Kragujevac, BDCKG (RS)
PP8	Foundation Business Start-up Center Bar, BSC BAR (ME)
PP9	Municipality of Bar, BAR (ME)
PP10	Mediterranean Agronomic Institute of Chania, CIHEAM MAICh (EL)

### **Associated Partners (APs):**

General Union Cisl Cultivators Venice (IT)
Bio district of production and biological community of central-eastern Venice - BIO VENICE (IT)
IAL - Innovation Learning Work S.r.l. - Social enterprise (IT)
AIAB-Italian Organic Agriculture Association (IT)
Agroecologiki SP (EL)
Municipality of Topola (RS)
Šumadija winemakers association (RS)
Ministry of Agriculture and Rural Development (HR)
Agroecology Europe (BL)

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# 1. BASIC BACKGROUND OF THE PILOT AREA

The pilot area of the Ecovinegoals project corresponds to the “Biodistretto Venezia” includes 15 Municipalities in the Province of Venice and 2 in the Province of Treviso. The overall extension of the pilot area is 105,800 hectares (1,058 Km<sup>2</sup>).

The organic district population density is lower than the Veneto Region but higher than the Italian one. Population is concentrated in the west part of Sandomatese. In this area, we are observing the urbanization phenomenon as in the big cities. Population is concentrating in urban areas, attracted by comfortable lifestyle characterized by more services.

The comparison of the population distribution by age group in different years shows an aging of the modal class that goes from 35-39 years in 2000 to 50-54 years in 2018. The average age grows from 41.4 to 45.6 years. This result is a clear local-scale effect of the births reduction that is affecting the whole Nation.

The Biodistrict climate condition are characterized by the Adriatic Sea affecting the rainfall regime and windiness. Rainfall range varies from 900 to 1,100 mm/year and gradually increases inland. Rainfall is concentrated mainly in the autumn period and May with minimums in July and January.

The average temperature is 13.5° C. The most critical period for agriculture is July, characterized by scarce rainfall and higher average monthly temperatures.

Soils are largely of alluvial origin. Sediment deposits transported by the Piave River in the western part and the Tagliamento River in the eastern part of the pilot area.

In the northern part calcareous sediments represents the traditional vine production area. In the coastal areas mostly characterized by sandy soils, dunes have been largely levelled by anthropogenic activity.

In the Biodistrict, there are nine Natura 2000 sites (mainly coastal). River-type sites are located along the banks of watercourses which cross widespread winegrowing areas. They represent an important element of landscape diversification and constitute crucial refuge and conservation biodiversity areas.

The planitial forest sites belong to the *Querco-carpineto* typology and are small and disconnected from each other.

The Biodistrict covers a flat area. The elevation decreases from north to south with an average difference of 5 m every 30 km. The highest part is located in the north at the traditional wine-growing areas. A large part of the Biodistrict (41.8 percent of the total area) is the resulting of land reclamation activity. This work has changed the original landscape composed by wetlands that has been replaced by arable land.

The land use analysis of the Biodistrict area shows that it is predominantly composed of agricultural land, with 76,500 ha (72.4 percent of the total area). Arable land predominates, covering 63% of the land area. This is followed by vineyards, which in terms of area cover about 7 percent, while orchards and meadows are around 1 percent. The remaining part of the land is covered by wetlands including rivers and ponds (for 8.5 percent), urbanized areas for (7,730 ha – 7.3 percent) and forest formations

(1.1 percent).

Comparing the municipal land use data expressed as a percentage, three categories can be identified:

1. The group of coastal municipalities with Cavallino Treporti, Jesolo, Caorle and San Michele al Tagliamento, characterized by the presence of wetlands with arable land;
2. The group of municipalities with relevant share of vineyard as Annone Veneto, Motta di Livenza, Pramaggiore and Cessalto;
3. The group of municipalities with a prevalence of arable soils such as Ceggia, Torre Mosto, Eraclea, Musile di Piave and San Stino di Livenza.

From 1990 to 2018, the urban area increased by 1,162 ha, corresponding to an average annual increase of 42 ha. In contrast, arable area decreased by 1,997 ha, corresponding to an average annual decrease of 71 hectares. Vineyards increase of 4,639 ha with an average annual growth of 166 ha, almost entirely from 2000 (4,616 ha).

In the Eastern Veneto area despite the fact that most of the area is planted with arable crops such as corn, wheat and soybeans, vines play a major economic and social role due to the widespread presence of important wineries.

Vineyard areas are concentrated on clay-silt soils in the northwestern municipalities of the Biodistrict. More than 55 percent of the vineyards of the Biodistrict (4,039 ha) are concentrated in Portogruaro, Annone Veneto, Motta di Livenza and Pramaggiore. Here, an intensive viticulture shapes the landscape of the north-eastern Biodistrict also characterized by the widespread presence of tree rows and isolated vegetation elements at the junctions of the rural road system or delimiting fields. The special nature of the area's soils allows the production of quality wines also confirmed by the presence of several appellations of origin coexisting in the same territory. The Biodistrict is crossed by the DOC Lison Pramaggiore wine road, also called "*La strada dei Dogi*".

## 2. STRENGTHS AND WEAKNESS OF THE PILOT AREA

The SWOT analysis below refers to the landscape of the Venice Biodistrict and is based on land use data from Corine Land Cover, climate data, biodiversity, landforms, and socio-economic data. The complete data can be found in report T2.2.2 (Report of the first results of the landscape analysis related to the pilot area of the Venice Biodistrict). The analysis allows the identification of subsequent landscape enhancement goals and related agro-ecological practices.

The strengths are the landscape elements of the pilot area and the elements of attractiveness.

Weaknesses are visual elements that contribute to the landscape homogenization and loss of biodiversity. Critical elements specific to the agricultural sector are included.

Opportunities are policies and best practices at regional, national or international level that can have effects on land use, biodiversity and environmental sustainability.

Threats regards social, economic, and environmental aspects at different temporal and spatial scales. These dynamics affect the landscape.

Table 1 shows the SWOT analysis.

**Table 1: SWOT analysis of the Venice Biodistrict pilot area.**

<b>Strenghts</b>		<b>Weakness</b>	
F1 - Presence of major tourist destinations, particularly along the Adriatic coast		D1 - Monotony of the landscape in part of Eastern Veneto area	
F2 - Widespread presence of wineries and agritourism that provide a wide range of hospitality and tasting services in the hinterland		D2 - Fragmentation of areas of high wildlife interest	
F3 - Network of tourist and food and wine routes with widespread presence of routes equipped for slow mobility		D3 - Unused and/or abandoned buildings (ruins)	
F4 - Easy accessibility of the area via highway, railroad and airport		D4 - Shortage of skilled farm labour	
F5 - Landscape of the reclamation of eastern Veneto area		D5 - Reduction of organic matter in soils	
		D6 - Inhospitality of the viticultural fields during the treatment period (bad quality of the air)	
<b>Threats</b>		<b>Opportunities</b>	
M1 - Population aging		O1 - Expansion of agricultural area under organic and integrated management	
M2 - Reduction of agricultural area		O2 - Dissemination of agro-ecological practices	
M3 - economic crisis with increased production costs (fertilizers and pesticides) and reduced consumer purchasing power		O3 - Markets more sensitive to sustainable products	
M4 - Competition with other seaside touristic destination (Croatia, Spain, Portugal, Greece, Albania, etc.).		O4 - Community policies to stimulate lifestyles geared toward health and sustainability	
M5 - Imbalance between GDO bargaining power and local producers		O5 - Increasing renewable energy	
M6 - Biodiversity loss			
M7 - Deteriorating water quality			

### 3. OBJECTIVES OF THE LOCAL ACTION PLAN FOR CONSERVATION OF LANDSCAPE AND HABITAT

#### 3.1. *Diversification and enhancement of the Eastern Veneto reclamation landscape.*

The reclamation landscape characterizes much of the Biodistrict and is the result of centuries of human intervention in modifying the natural course of water and improving the quality of life of the people living there. In the absence of continued human activity, this landscape would be lost.

Reclamation landscape is also characterized by the widespread presence of primary and secondary water supply, inter-pasture roads and regular fields. In some intensively cultivated areas, the landscape is monotonous with little perennial vegetation in order to minimize competition with crops and not hinder mechanization. A diversification effort is already underway in the Biodistrict through the planting of wooded areas and the development of tourist-recreational activities within them (food and wine routes suitable for slow mobility). There are also numerous cultural activities suitable for the popularization and recognition of this unique artificial landscape.

### **3.2. Biodiversity conservation**

There are several recognized sites of high naturalistic value in the Biodistrict, mainly localized in the coastal area but also in the inland areas, such as relict lowland forests and valuable wetlands.

A problem in biodiversity conservation lies in the reduced presence of ecological corridors suitable for joining these green areas and the presence of large areas of intensive agriculture.

### **3.3. Promote organic and/or integrated crop management and the spread of agro-ecological practices**

Organic farming and agro-ecological practices represents an opportunity for a healthy and sustainable food production. European Commission, with Green Deal and “Farm to Fork” strategy, has set the target of allocating at least 25% of EU farmland to organic farming and significantly increasing organic aquaculture by 2030. In the light of this priority, it is appropriate to encourage and increase knowledge at local level of these agricultural practices.

### **3.4. Improve water and soil quality**

The quality of agricultural production is strictly connected to the healthiness of the cultivation area. Irrigation water is a basic factor that must be preserved from contamination of both agricultural activities (use of fertilizers and chemical pesticides) and extra agricultural activities (industrial and urban waste).

The fertility of the soil plays an important role. Organic matter and soil biodiversity must be maintained at satisfactory levels in the long term.

The tables below present the proposed interventions related to the management of the green areas and abandoned agricultural buildings divided according to the effects on the landscape in the short, medium and long term.

## **4. SHORT TERM STEPS FOR CONSERVATION OF LANDSCAPE AND HABITAT IN VITICULTURE AREA AND FOR VALORIZATION OF ECOSYSTEM SERVICES**

**Table 2: List of short-term activities (1-2 years)**

<b>1.1 Multifunctional turf management of vineyards</b>
<b>1.2 Enhancement of existing vegetation, in particular riparian vegetation and isolated trees</b>

## 5. DESCRIPTION OF THE SHORT TERM STEPS FOR CONSERVATION OF LANDSCAPE AND HABITAT IN VITICULTURE AREA AND FOR VALORIZATION OF ECOSYSTEM SERVICES

### 1.1 Multifunctional turf management of vineyards

The permanent grassland in vineyards creates a more attractive and relaxing landscape, similar to a pasture or a meadow. In order to optimize the positive effects produced by them, they must be managed taking into account the natural cycle of the species in order to complete the life cycle of the plants with blooming and production of seeds at least in some parts of the vineyards. This governance of the grassland balances the production with the biodiversity conservation in the vineyard.

Name	1.1 Multifunctional turf management of vineyards
Time frame	2 years
Short description of activity	<ul style="list-style-type: none"> <li>- Green manure</li> <li>- Native melliferous species cultivation</li> <li>- Change conventional mowing planning leaving areas with free evolution of herbaceous species</li> <li>- Ornamental rose plants as indicator species at the begin of the vineyard rows</li> </ul>
Responsible person/Institution	<ul style="list-style-type: none"> <li>- Wineries</li> <li>- Eastern Veneto Biodistrict Municipalities</li> <li>- Eastern Veneto Reclamation Consortium</li> </ul>
Objectives (link it with objectives under 3)	1, 2, 4
Expected results	<ul style="list-style-type: none"> <li>- Improve the landscape aspect</li> <li>- wildlife refuge areas</li> <li>- Favour nesting of species that nest on the ground</li> <li>- Favours pollinating and useful insects, for example antagonists of aphids</li> <li>- Increase the storage of organic matter and soil biodiversity</li> <li>- Water retention capacity</li> <li>- Reduce soil erosion phenomena</li> <li>- Reduction of health risks for operators and residents of wine-growing areas</li> </ul>
Indicators	<ul style="list-style-type: none"> <li>- Share of vineyards (% surface) of the Biodistrict in which the multifunctional management of the turf is practiced</li> <li>- Number of wineries that adopt multifunctional turf management</li> <li>- Increase in the organic substance content of the Biodistrict soils compared to the current average situation</li> <li>- Increase of biodiversity (butterflies, number of birds, ...) in the vineyard</li> </ul>

	<ul style="list-style-type: none"> <li>- Increased complexity of the soundscape (more articulated frequency diagram)</li> <li>- Less use of chemical inputs in the Biodistrict (chemical fertilizers and pesticides)</li> </ul>
<b>Key stakeholders/partners involved</b>	<ul style="list-style-type: none"> <li>- Eastern Veneto Biodistrict</li> <li>- Producer associations</li> <li>- Environmental associations</li> <li>- Agro-environmental universities</li> </ul>
<b>Connectivity to other activities</b>	
<b>Potential resources</b>	<ul style="list-style-type: none"> <li>- RDP Veneto Region</li> <li>- CAP first pillar ecoschemes</li> </ul>
<b>Potential transfer of good practices</b>	B.S.6 Grassing of the vineyard B.S.8 Green manure B.S.15 Mulching B.S.18 Techniques for the protection of avifauna and useful insects B.S.20 Decision support system for the reduction of treatments in viticulture B.S.23 Monitoring of soil fertility B.S.25 Wooden poles B.S.27 Erosion prevention
<b>Potential risks and obstacles</b>	Unwillingness of winemakers to change habits (lack of complete knowledge of agro-ecological practices and effects, increased production risk, need for new skills, etc.) <ul style="list-style-type: none"> <li>- Limitation to the movement of machines</li> <li>- Increase in production costs in the short term (monitoring biodiversity and organic matter, monitoring of pollinating insect populations)</li> <li>- Greenwashing risk</li> </ul>

## ***1.2 Enhancement of existing vegetation, in particular riparian vegetation and isolated trees***

In the Eastern Veneto area, riparian vegetation constitutes a connecting element between different areas of high naturalistic value that interrupts the monotony of the agricultural landscape in many cases.

Riparian vegetation represents a characterizing element of river tourism practiced along the main waterways and carries out an important phytoremediation action. Isolated trees are another distinctive element of the territory and the rows present along the road network or at the borders of the farms. The management of isolated trees and rows should include the planting of native shrub and tree species in the neighbouring area in order to create a protection area from the vineyard. In some cases, these plants have a recognized monumental function (monumental trees of the Veneto) and constitute an element of characterization of the territory.

<b>Name</b>		<b>1.2 Enhancement of existing vegetation, in particular riparian vegetation and isolated trees</b>
<b>Time frame</b>		2 years
<b>Short description of activity</b>		Conservation and enhancement of isolated plants, valuable linear formations and riparian formations
<b>Responsible person/Institution</b>		<ul style="list-style-type: none"> <li>- Farms</li> <li>- Eastern Veneto Biodistrict Municipalities</li> <li>- Eastern Veneto Reclamation Consortium</li> <li>- MIPAAF</li> </ul>
<b>Objectives (link it with objectives under 3)</b>		1, 2, 4
<b>Expected results</b>		<ul style="list-style-type: none"> <li>- Landscape diversification (breaking the monotony of the agricultural landscape typical of reclamation and intensive agriculture,</li> <li>- Promote biodiversity in particular through the creation of ecological corridors and the establishment of shelter areas and nesting of wildlife</li> <li>- Phytoremediation with improvement of surface water quality (riparian vegetation)</li> <li>- Maintain the population closer to the territory</li> </ul>
<b>Indicators</b>		<ul style="list-style-type: none"> <li>- Extension of ecological corridors (Km)</li> <li>- Number of Municipalities with Green Management Plans</li> <li>- Increased heterogeneity of the landscape</li> </ul>
<b>Key stakeholders/partners involved</b>		<ul style="list-style-type: none"> <li>- Biodistrict of Eastern Veneto</li> <li>- Eastern Veneto Municipalities</li> <li>- Forestry Association of the Plain</li> <li>- Farms</li> <li>- Reclamation Consortium</li> </ul>
<b>Connectivity to other activities</b>		2.1, 3.1
<b>Potential resources</b>		<ul style="list-style-type: none"> <li>- RDP Veneto Region</li> <li>- PNRR Protection and enhancement of urban and extra-urban green areas</li> <li>- Voluntary carbon credit market</li> </ul>
<b>Potential transfer of good practices</b>		B.S.10 Agricultural areas of high natural value B.S.17 Land use maintenance systems B.S.18 Techniques for the protection of avifauna and useful insects B.S.25 Wooden poles
<b>Potential risks and obstacles</b>		<ul style="list-style-type: none"> <li>- Reduction of crop production due to shading and reduction of arable land</li> <li>- Clogging of rivers and canals if not properly maintained</li> <li>- Limitation to the movement of machines</li> <li>- Green maintenance and management costs</li> </ul>

## 6. MID-TERM STEPS FOR CONSERVATION OF LANDSCAPE AND HABITAT IN VITICULTURE AREA AND FOR VALORIZATION OF ECOSYSTEM SERVICES

Table 3: List of medium-term activities (3-5 years)

### 2.1 Riparian vegetation and isolated linear trees (new plantation)

## 7. DESCRIPTION OF MID TERM STEPS FOR CONSERVATION OF LANDSCAPE AND HABITAT IN VITICULTURE AREA AND FOR VALORIZATION OF ECOSYSTEM SERVICES

### 2.1 Riparian vegetation and isolated linear trees (new plantation)

Eastern Veneto is the result of subsequent reclamation interventions. The territory is affected by a dense secondary water network without riparian vegetation and with reduced effects on biodiversity. There are important planting interventions of new riparian vegetation using native species in order to interrupt the homogeneity of the landscape and create new ecological corridors.

Name	2.1 Riparian vegetation and isolated linear trees (new plantation)
Time frame	5 years
Short description of activity	<ul style="list-style-type: none"> <li>- New plantations riparian hedges and rows</li> <li>- Recreation areas (children's playground, barbecue areas, camping, etc.)</li> </ul>
Responsible person/Institution	<ul style="list-style-type: none"> <li>- Farms</li> <li>- Eastern Veneto Biodistrict Municipalities</li> <li>- Eastern Veneto Reclamation Consortium</li> </ul>
Objectives (link it with objectives under 3)	1, 2, 4
Expected results	<ul style="list-style-type: none"> <li>- Landscape diversification</li> <li>- Promote biodiversity, in particular through the creation of ecological corridors and the establishment of refuge areas and nesting of wildlife</li> <li>- Phytoremediation with improvement of surface water quality (riparian vegetation)</li> <li>- Maintain the population closer to the territory</li> </ul>
Indicators	<ul style="list-style-type: none"> <li>- Increase in extension of new green areas</li> <li>- Number of carbon neutral companies</li> <li>- Increase of landscape heterogeneity</li> <li>- Increased biodiversity</li> <li>- Extension (Km) of ecological corridors</li> </ul>

	- Number of Municipalities with Green Management Plans
<b>Key stakeholders/partners involved</b>	<ul style="list-style-type: none"> <li>- Biodistrict of Eastern Veneto</li> <li>- Eastern Veneto Municipalities</li> <li>- Forestry Association of the Plain</li> <li>- Farms - Reclamation Consortium</li> </ul>
<b>Connectivity to other activities</b>	1.2, 3.1
<b>Potential resources</b>	<ul style="list-style-type: none"> <li>- RDP Veneto region</li> <li>- Protection and enhancement of urban and extra-urban green areas</li> <li>- Voluntary carbon credit market</li> </ul>
<b>Potential transfer of good practices</b>	B.S.1 Agroforestry B.S.10 Agricultural areas of high natural value (AVN)
<b>Potential risks and obstacles</b>	<ul style="list-style-type: none"> <li>- Reduction of crop production by shading</li> <li>- Clogging of rivers and canals if not properly maintained</li> <li>- Limitation to the movement of machines</li> <li>- Green maintenance and management costs</li> </ul>

## 8. LONG TERM STEPS FOR CONSERVATION OF LANDSCAPE AND HABITAT IN VITICULTURE AREA AND FOR VALORIZATION OF ECOSYSTEM SERVICES

Table 3: List of long-term activities (6-10 years)

<b>3.1 Buffer woodland</b>
<b>3.2 Encourage the use of existing buildings</b>

## 9. DESCRIPTION OF LONG TERM STEPS FOR CONSERVATION OF LANDSCAPE AND HABITAT IN VITICULTURE AREA AND FOR VALORIZATION OF ECOSYSTEM SERVICES

### 3.1 Buffer woodland

Between the residual woods present in the Eastern Veneto plain and the cultivated areas (ecotones), it is important to create buffer areas to protect the same woods and the fauna that lives there. The use of native vegetation should be encouraged and arranged in such a way as to create areas with decreasing height levels.

<b>Name</b>	<b>3.1 Buffer woodland</b>
<b>Time frame</b>	6-10 years
<b>Short description of activity</b>	New ecotone formations plants composed by shrubs and herbaceous formations around existing wooded areas

<b>Responsible person/Institution</b>	<ul style="list-style-type: none"> <li>- Farms</li> <li>- Eastern Veneto Biodistrict Municipalities</li> <li>- Eastern Veneto Reclamation Consortium</li> </ul>
<b>Objectives (link it with objectives under 3)</b>	1, 2, 3, 4
<b>Expected results</b>	<ul style="list-style-type: none"> <li>- Protection of lowland woods from cultivated areas and protection of the fauna living in them</li> <li>- Creation of wildlife refuge and nesting areas</li> <li>- Biodiversity and landscape heterogeneity</li> </ul>
<b>Indicators</b>	Number of plants in new buffer zones
<b>Key stakeholders/partners involved</b>	<ul style="list-style-type: none"> <li>- Biodistrict of Eastern Veneto</li> <li>- Eastern Veneto Municipalities</li> <li>- Forestry Association of the Plain</li> <li>- Veneto Agriculture</li> <li>- Farms</li> <li>- Reclamation Consortium</li> </ul>
<b>Connectivity to other activities</b>	1.2, 2.1
<b>Potential resources</b>	<ul style="list-style-type: none"> <li>- RDP Regione Veneto</li> <li>- PNRR Tutela e valorizzazione verde urbano e extraurbano</li> </ul>
<b>Potential transfer of good practices</b>	B.S.1 Agroforestry B.S.10 Agricultural areas of high natural value (AVN)
<b>Potential risks and obstacles</b>	<ul style="list-style-type: none"> <li>- Reduction of the cultivated area</li> <li>- Reduction of machine handling space</li> <li>- Maintenance and green management costs</li> </ul>

### ***3.2 Encourage the use of existing buildings***

The agricultural area has numerous abandoned and often unsafe buildings that constitute an element of degradation of the landscape that will have to be addressed through redevelopment and / or demolition actions. The action is particularly important in light of the progressive loss of arable land (50 ha / year) to the detriment of other uses.

<b>Name</b>	<b>3.2 Encourage the use of existing buildings</b>
<b>Time frame</b>	6-10 years
<b>Short description of activity</b>	<ul style="list-style-type: none"> <li>- Rural building requalification interventions favouring efficiency criteria for the use of energy resources (insulation and renewable energy)</li> <li>- Demolition of ruins</li> </ul>
<b>Responsible person/Istitution</b>	<ul style="list-style-type: none"> <li>- Farms</li> <li>- Eastern Veneto Biodistrict Municipalities</li> <li>- Eastern Veneto Reclamation Consortium</li> </ul>
<b>Objectives (link it with objectives under 3)</b>	1
<b>Expected results</b>	<ul style="list-style-type: none"> <li>- Landscape improvement</li> </ul>

	<ul style="list-style-type: none"> <li>- Containment of degradation</li> <li>- Encourage the use of areas that can already be built</li> </ul>
<b>Indicators</b>	<ul style="list-style-type: none"> <li>- Number of demolitions and renovations</li> </ul>
<b>Key stakeholders/partners involved</b>	<ul style="list-style-type: none"> <li>- Eastern Veneto Municipalities</li> <li>- Farms</li> <li>- Veneto region</li> </ul>
<b>Connectivity to other activities</b>	N/A
<b>Potential resources</b>	PNRR Protection and enhancement of architecture and rural landscape
<b>Potential transfer of good practices</b>	B.S.2 Biodistrict B.S.17 Land use maintenance systems
<b>Potential risks and obstacles</b>	<ul style="list-style-type: none"> <li>- Costs</li> <li>- Future destination uncertainty (risk of cathedrals in the desert)</li> </ul>

## 10. CONCLUSIONS

Report T2.3.1 - Local Action Plan for the conservation of the landscape, of the viticultural habitats and the enhancement of ecosystem services has been elaborated on the basis of the data collected in the T2.2.2 report.

SWOT analysis was carried out to identify the main problems and opportunities related to the wine landscape of the Venice Biodistrict. The analysis showed that the threats are mainly linked to the increase in anthropogenic pressure. This factor is leading to land use changes, the intensification of agriculture and the widespread fragmentation of natural areas.

Opportunities are related to ecological transition that the agricultural sector is also promoting through organic farming and agro-ecological practices. Finally, some practices and interventions to be carried out in the short, medium and long term were proposed, reflecting the principles of agro-ecology aimed at managing the turf, the existing vegetation and the enhancement of abandoned buildings.



# Ecological Vineyards Governance Activities for Landscape's Strategies

Deliverable T2.3.1

## LOCAL ACTION PLAN FOR CONSERVATION OF LANDSCAPE AND HABITAT IN VITICULTURE AREA AND VALORISATION OF ECOSYSTEM SERVICES

Responsible Partner

Autonomous Province of Trento

18/03/2022

## **BASIC PROJECT INFORMATION:**

PROGRAMME CALL: INTERREG V-B Adriatic-Ionian ADRION

Project Acronym ECOVINEGOALS

Project Number: 866

Program Priority Axis: 2

Start – End Date: 01.03.2020 – 31.08.2022

Total budget: EUR 1 939 505.59

ERDF: 1 399 759.25 IPA: 248 820.5

**Lead Partner Organisation: LAG Eastern Venice, Italy**

**Url:** [www.ecovinegoals.interregadrion.eu](http://www.ecovinegoals.interregadrion.eu)

## **DOCUMENT INFORMATION**

<b>Lead Author</b>	Autonomous Province of Trento
<b>Contributors</b>	
<b>Dissemination Level</b>	PP

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March 2022

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## Project Summary

ECOVINEGOALS promotes sustainability and resilience in the winemaking industry by encouraging the transition of intensive viticulture towards agroecological management systems that protect natural habitats and landscapes while reducing chemical and fossil fuel inputs and harmful emissions. The project aims to enhance stakeholders' skills in participatory local governance, strengthen transnational cooperation and provide specific transnational instruments to promote, support, and manage the agroecological transition.

### **Expected results**

- Sharing between partners in the ADRION countries of fundamental concepts and practices necessary for the transition from intensive viticulture management systems, towards agroecological management methods.
- Improvement of the participatory local governance skills of decision makers and all other viticulture stakeholders, both public and private, to jointly develop and define strategies and plans aiming to protect natural habitats and rural landscapes.
- Transnational communication, cooperation, and exchange between regional authorities and civil society organizations concerning common objectives to protect vulnerable environments, promote ecosystem services, prevent or mitigate climate change, and avoid social conflicts in land use.
- An increase in the number and quality of tools and strategies available to support the planning and management of the agroecological transition of viticulture systems in the region.

### **Partnership:**

<b>PP1- LP</b>	<b>LAG EASTERN VENICE, VEGAL (IT)</b>
PP2	Autonomous Province of Trento, PAT (IT)
PP3	Chamber of Agriculture and Forestry of Slovenia, KGZS-Zavod GO (SI)
PP4	Research Centre of the Slovenian Academy of Sciences and Arts, ZRC SAZU (SI)
PP5	Agency for Rural Development of Istria Ltd Pazin, AZRRI (HR)
PP6	Association for the promotion of employment, vocational training and education, INFORMO (HR)
PP7	Business Development Center Kragujevac, BDCKG (RS)
PP8	Foundation Business Start-up Center Bar, BSC BAR (ME)
PP9	Municipality of Bar, BAR (ME)
PP10	Mediterranean Agronomic Institute of Chania, CIHEAM MAICh (EL)

### Associated Partners (APs):

General Union CISL Cultivators Venice (IT)
Bio district of production and biological community of central-eastern Venice - BIO VENICE (IT)
IAL - Innovation Learning Work S.r.l. - Social enterprise (IT)
AIAB-Italian Organic Agriculture Association (IT)
Agroecologiki SP (EL)
Municipality of Topola (RS)
Šumadija winemakers association (RS)
Ministry of Agriculture and Rural Development (HR)
Agroecology Europe (BL)

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## 1. BASIC BACKGROUND OF THE PILOT AREA

The Cembra Valley covers an area of approximately 135 km<sup>2</sup>, corresponding to 2.2% of the total surface of the Autonomous Province of Trento, and extends along the lower part of the Avisio stream.

Located in north-eastern Trentino, close to the border with Alto Adige, which follows almost the entire slope right, connects the provincial capital and the Piana Rotaliana with the valleys of Fassa and Fiemme.

Near Segonzano and Doss Venticcia, the Avisio gorge forms a narrowing that flexes slightly the course of the valley and denotes its division into two sections: the lower one and the upper one. The right side that borders the Adige Valley has several convenient mountain passes that once, crossed by ancient paths, were valid opportunities for communication, commerce, and culture.

The mountain landscape is diluted, degrading with the altitude, in the agricultural one of the vine that descends until it laps the Avisio, rushing into the gorge softened by the terraces as useful as they are vital for the layout hydrogeological of the territory and the opportunities for economic sustenance.

The Valley extends for about 33 km with a NE-SW trend and is surrounded by not particularly high mountains that connect the massifs of the upper valleys to the plain. These are reliefs that go from the right bank 1.000 to 1.800 m asl and on the left bank instead, they reach more consistent altitudes (up to 2.490 m asl of the Monte Croce).

The morphology of the valley, the average altitude, the orientation, and its position in the context of the mountain range alpine, determine a clear imprint on its microclimate which can be considered intermediate between that pre-alpine and continental. Typically the right side of the valley boasts a more favorable exposure, while the left bank is more shaded, humid, and cold. The average annual temperature is about 10 ° at the altitude of the main inhabit centers (600 m asl). Always a land of passage, the Cembra Valley is divided not only by morphology but also by different populations and political institutions that over the millennia have disputed its territories. The historical settlements are rural and centralized of the Latin type, unitary, with buildings leaning against each other, arranged in agglomeration. Other minor settlements, which follow the use of the territory, are scattered around the "maso" and derived from medieval German-speaking colonization. The so-called "maso" consist of complexes of one or more buildings, partly residential and partly productive, surrounded by agricultural plots. Cases of large and centralized settlements are rare, possibly these characteristics derive from recent developments in urbanization.

At the height of the villages, the road network develops running through the entire valley from Lavis to Val di Fiemme on both banks, with a single point of junction between Faver and Segonzano, descending by a road up to valley bottom where the Friendship Bridge stands. There are no other direct connections between the two shores. It comes therefore vital infrastructure for the valley that takes up the ancient path controlled by the Segonzano Castle itself.

All the countryside is crossed by roads that connect the different plots and the inhabited centers, also having the task of assisting in the regulation of rainwater favoring its fast outflow. They vary in size based on their importance but are still always in widths limited due to the harshness of the places. Sometimes they are really wide walkways, paths, or mule tracks about one meter, and then widen in the driveways up to three or four meters.

Starting from 1 January 2016, the administrative situation of the Cembra Valley has 7 municipalities: three on the bank right - Giovo, Cembra-Lisignago, and Altavalle - and four on the left bank - Albiano, Lona Lases, Segonzano, and Sover.

As of January 1, 2020, the resident population in the Cembra Valley Community amounts to 11,053 inhabitants.

In the Community of Valle di Cembra, in 2018, 1,083 active companies were detected, of which over 40% operate in the agricultural sector. Agricultural activity is the one most deeply rooted in the territory, in history, and in the time of the valley, coming from a centuries-old tradition that currently leads to wine production excellent, able to

best represent the entire Cembran territory. Viticulture has been practiced in this area since immemorial times, as evidenced by the discovery of the Situla, a bronze container for wine dating back to the VI century BC, and other discoveries of minor importance found in the countryside of Cembra (Marzatico, 1994).

The traces of this diffusion, and its primary role, are clearly legible even on the territory, which is strongly characterized by crops and, above all, by terracing. They have become an element of identity recognized everywhere, even at the ministerial level that the entire valley intends to not only preserve but also enhance. The production of wines and grappa distinguishes and identifies the Cembra Valley in the imagination of the Trentino people and it is also recognized elsewhere thanks to the marketing channels of the products that are wide and arrive quietly even abroad.

It is important to underline that the porphyry extraction sector (nicknamed Red Gold for the profitability deriving from its extraction and processing) in the Cembra Valley is of absolute social and economic importance, so much so that it is now part of the history and identity of the territory itself. Throughout the last century it has represented the main source of income and even if it was affected by the negative dynamics caused by the recent economic crisis, remains a driving sector on which the whole Valley hopes to be able to count also in the future. The sector is structured around many small and medium-sized companies, mainly located in the municipalities of Albiano and Lona-Lases. This activity has had a pivotal role in promoting the economic development of the Valley and indirectly sustains the terraced vineyards on the other side of the valley. Here, the combination of a favorable exposition (South-East) and a considerable slope has meant that the gradual transformation from woodland to arable land has gone through an enormous work of agricultural interventions, mainly for creating terraces supported by dry stone containment walls. These land modeling operations defined a unique landscape, characterized by the perfect symbiosis between terraced structures necessary to sustain the cultivation and the sinuous and articulated natural course of the valley.

The Cembra Valley is also characterized by the presence of an environment that expresses significant naturalistic and landscaping values, made valuable in particular from the succession of wetlands and peat bogs in different stages of evolution. Precious evidence of the Quaternary Glacial era is the glacial terraces at higher altitudes and, at intermediate altitudes, the evidence of the morphogenetic activity of the surface water network is the alignment of depressions and bumps rich in forest ecosystems. At lower altitudes, there are the inhabited centers developed over time mainly over the engravings and the gorges of the stream Avisio. Moreover, the territory, at medium-low altitudes is characterized by extensive sequences of terraces dotted with villages and small rural settlements, which allow it to be counted among the most significant traditional agricultural landscapes of Trentino. The path of the Avisio stream stands out for the singularity of its landscape views as well as for the precious corners of wilderness that it still hosts. The Cembra territory is also crossed by a network of paths, some of which (such as the European Path E5 and the Dürer Path) are inserted in the context of transnational breath.

The Community is characterized by large situations of environmental integrity which culminate in the elements of the Natura 2000 Network identified by European regulations and covering a total area equal to 184.5 hectares. A further instrument of conservation of the nature of the Valley is represented by the Network of Reserves Val di Cembra-Avisio. It is a tool for the management of existing protected areas, for the implementation of nature conservation interventions, and for the enhancement of the territory and its peculiarities with a logic of sustainable development in harmony with the environment.

## 2. STRENGTHS AND WEAKNESS OF THE PILOT AREA

STRENGTH	WEAKNESS
<ol style="list-style-type: none"> <li>1. Historical viticulture memories and ancient wine tradition in the pilot area;</li> <li>2. Presence of numerous agricultural ancient artifacts (eg. Situla finding, and others created with the local stone: porphyry);</li> <li>3. Unique territory, characterized by more than 700 km of dry stone walls extension;</li> <li>4. Findings of watercolor paintings made by a German painter Albrecht Durer, which also was dedicated a forest path in Cembra Valley that link to Austria and German countries;</li> <li>5. Promotional events, devoting an iconic local wine viticultural product: Muller Thurgau wine grape and also the sparkling wine “spumante Trento DOC Metodo classic;</li> <li>6. Presence of mainly small companies (fragmentation) that can be a resource for the production of unique products;</li> <li>7. Abundance of natural beauties and ancient churches and shrines (Piramidi di Segonzano, Lago Santo, Chiesetta di San Floriano, and San Leonardo...);</li> <li>8. Particular climate suite for growing grapes (soil and climate);</li> <li>9. Very high-quality autochthons sort vine.</li> </ol>	<p>The Cembra Valley suffers from the problems that affect most of the agricultural mountain areas:</p> <ol style="list-style-type: none"> <li>1. High production costs, with an estimate of 800 hours/ha (200 more than on the valley floor);</li> <li>2. high maintenance costs for the traditional dry-stone terraces;</li> <li>3. high levels of property fragmentation</li> <li>4. a generally low size of the properties which decreases competitiveness;</li> <li>5. aging rural populations, with a lower propensity to introduce innovation;</li> <li>6. lower possibilities for mechanization, although the presence on the market of small-sized machines that adapt to mountain viticulture improves the possibilities for their beneficial introduction in vineyard management;</li> <li>7. Improvement of quality and specific tourism;</li> <li>8. Poor skill of farmers and citizens about Agroecology.</li> </ol>

### 3. GENERAL OBJECTIVES OF THE LOCAL ACTION PLAN FOR THE CONSERVATION OF LANDSCAPE AND HABITAT

The Local Action Plan (LAP) for the conservation of landscape and habitat in the Cembra Valley pilot area is the result of a landscape analysis (T2.2.2 - based on land use data, morphological terrain analysis using the digital elevation model, habitat types, hydrography of the area, geological and lithological data, specific repulsive and attractive elements) and several participatory meetings with the most relevant stakeholders of the pilot area including a representative of farmers, local institutions, tourism, commerce, and craft sectors (T3.3.1). The general objective of the LAP is to define a strategic framework in which to insert a set of short-mid and long-term coordinated actions that should ensure a participated and dynamic landscape and habitat conservation. The conservation of the traditional landscape is a strategic issue for Cembra Valley and local administrations achieved the important result of registering the terraced vineyards of the Cembra Valley in the national register of historic rural landscapes (issued by the Decree of the Ministry of Agriculture n. 17070 19/11/2012). Hundreds of kilometers of stone walls are the main element of the viticulture landscape and represent the efforts of the local community for making the land arable. The Atlas of Terraced Landscapes of north-eastern Trentino, issued on December 2019 by the Observatory of the Trentino Landscape, reports for the pilot area the following data:

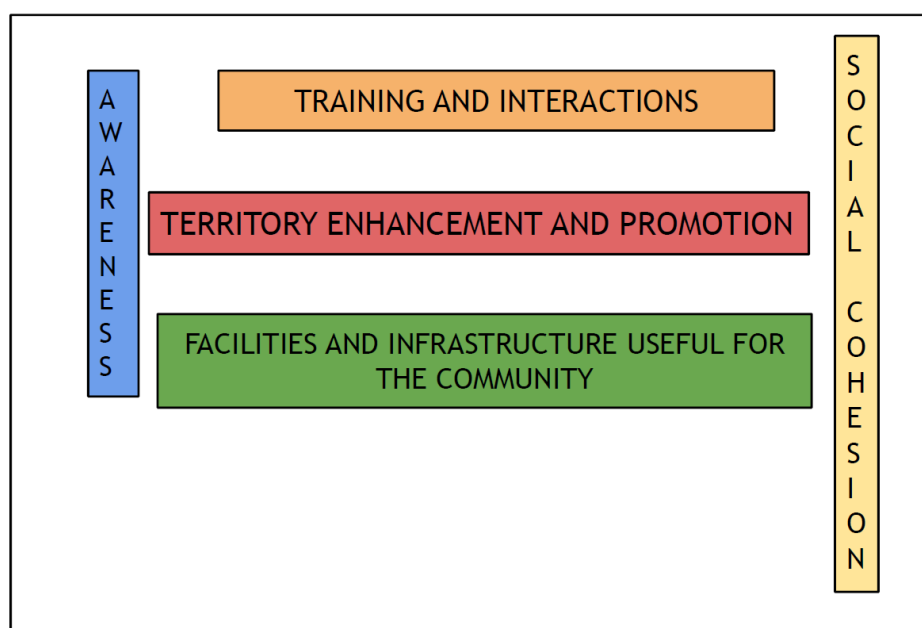
Municipality	Total surface (ha)	Terraced area (ha)	%	Terrace abandoned (ha)	Terrace cultivated (ha)	Km of stonewalls
Cembra-Lisignago	2.411,05	224,89	9,33	51,01	173,89	182
Altavalle	3.359,20	215,82	6,42	119,76	96,07	166
Albiano	994,49	41,56	4,18	25,76	15,79	23
Giovo	2.085,66	136,72	6,56	10,76	125,96	94
Segonzano	2.074,78	111,77	5,39	58,35	53,43	71
Lona – Lases (partially included in p.a)	1.134,50	17,13	1,51	14,96	2,17	9
<b>TOTAL</b>	<b>12.059,68</b>	<b>747,89</b>	<b>6,20</b>	<b>280,6</b>	<b>467,31</b>	<b>545</b>

The high number of farmers with a long tradition and experience in viticulture and the population's strong sense of belonging to their own territory allows the production of excellent wines (Müller Thurgau, Chardonnay, Pinot noir, Schiava) and the conservation of local biodiversity and traditional landscape. Both are important elements for building sustainable tourism.

In the Autonomous Province of Trento, the landscape issue is ruled by the provincial urban planning law for the government of the territory (L.P. 15/2015) that confirms the centrality of the landscape in territorial policies and commits to limiting land consumption and redeveloping the existing built heritage. The Provincial Urban Plan (PUP) is a plan with landscape value and has introduced the Landscape Charter (art.23 paragraph 2) as a new tool for reading the forms of the territory and recognizing its values, in order to direct future transformations also in the local dimension in line with the innovative interpretation introduced by the European Landscape Convention (Council of Europe 2000).

## 4. LANDSCAPE AND HABITAT IN THE TREE AXIS OF WORK

Traditional landscape maintenance and habitat protection are cross-cutting objectives within the overall strategy for the agroecological transition of the pilot area, developed through the participatory method. The general transition strategy is organized into three axes of work: training and interaction, territory enhancement and promotion, facilities and infrastructures useful for the community. The two columns that flank the three axes of work represent the principles that support and accompany the initiatives, activities, and choices of the action plan: awareness and social cohesion. Within each axis initiatives for landscape maintenance and habitat protection are foreseen.



### AXIS 1: TRAINING AND INTERACTIONS

#### GENERAL OBJECTIVE:

*Construction of a permanent training system that accompanies farms in the path of agroecological transition and the search for forms of interaction and collaboration, in particular with the tourism sector, agri-food trade, and crafts, for the establishment of networks between companies and territorial agreements.*

#### ACTION 1.1 TRAINING AND COUNSELING FOR LANDSCAPE AND HABITAT

Within the training and counseling activities for farmers, a special focus will be dedicated to increasing awareness of the importance of the maintenance of the traditional landscape and biodiversity and the intervention capacities. Landscape and agricultural biodiversity are closely related. This relationship is often complex as agricultural biodiversity contributes to the formation of the landscape and landscape variations affect biodiversity in a co-evolutionary process. There are strong links between the structural aspects of the landscape, the functions of the ecosystems that compose it, and the

landscape functions. From an ecological point of view, not only the presence or absence of certain landscape elements is important, but also their spatial configurations understood as shape, size, distance, and degree of connectivity between the different elements. A heterogeneous landscape, complex from an ecosystem point of view, generally presents a greater variety of habitats, a greater floristic, faunal, and agricultural biodiversity, and consequently a greater multifunctionality and in some cases a greater aesthetic/ perceptual value. The main foreseen activities are the following:

- Training activities for maintenance, restoration, and enhancement of dry stone walls and terraces.
- Counseling activities for maintenance, restoration, and enhancement of traditional agricultural structures: country huts, scattered farms, and mountain huts (malghe).
- Initiatives for the promotion of the recovery of abandoned land, the realization of hydraulic-agrarian arrangements respecting the traditional landscape, crop diversification, reintroduction of animal husbandry, increase of agricultural biodiversity, and landscape connectivity.
- Realization of events and training courses on the environmental, historical, and cultural aspects of the Cembra Valley.

## **AXIS 2: TERRITORY ENHANCEMENT AND PROMOTION**

### **GENERAL OBJECTIVE:**

*Initiatives for the identification of a brand and a territorial organization that enhances and promotes the materials and intangible resources of the Cembra Valley such as agricultural and handicraft products, cultural, landscape, and environmental heritage, in a context of authenticity and respect for local particularities.*

### **ACTION 2.1 – INITIATIVES FOR TERRITORIAL PLANNING**

The action is aimed at the reorganization of what is already existing in the Cembra Valley and at the planning of the necessary elements for the enhancement and promotion of the material and intangible resources of the Valley. In particular, there is a need for an interoperable path road link between the municipalities. This turns out to be the most obvious lack of the area: in fact, this lack does not allow the enhancement of the territory also from a tourist point of view. With the strengthening of the existing road axes it is consequently possible to create landscape-environmental and historical-cultural paths and itineraries that allow the achievement of the objective of this axis. At the same time, constant ordinary and extraordinary maintenance work of the rural road network is necessary with a multifunctional logic. To do this it is necessary to commit both public resources and resources that may come from the private business world (porphyry quarries). With this action, a real enhancement and networking of historical-cultural structures are

implemented.

## **ACTION 2.2 – PROMOTION AND IDENTIFICATION OF AN ORGANIZATIONAL SUBJECT**

The community feels the need to promote and identify an organizational subject capable of networking initiatives in the agricultural and tourism sector, creating synergies and collaborations, developing promotion and training as well as community awareness. According to the community, an inter-municipal table must therefore be promoted that includes public and private subjects and which initially has two objectives: concrete actions that have a beginning and an end and intermediate and final checks that allow monitoring the various individual actions. This point has been underlined by many members of the community who complain about the presence of projects and actions that have never ended, started, and then suspended or abandoned: this modality of intervention on the territory blocks any possibility of tourist cultural development. The multidisciplinary and interdisciplinary table would also have the general objective of teaching the different actors and therefore the whole community to work step by step together.

## **ACTION 2.3 – A BRAND FOR THE CEMBRA VALLEY**

The general activity involves the creation of a specific brand or brand that characterizes and identifies the main peculiarities of the Valley, favoring the creation of a new business idea. For this purpose, it is necessary both a training activity for the tour operators of the Valley and more generally a training activity for the citizens of the territory aimed at promoting the growth of awareness and awareness of the environmental and cultural value of the landscape and material and immaterial heritage of the Valley. It will therefore be necessary to intervene on specific peculiarities of the territory. In particular, the following sub-actions have been identified:

- training activity on the landscape and cultural aspects of the Val di Cembra
- restoration and enhancement of traditional agricultural structures;
- the creation of refreshment points and sale of clearly identifiable local products (from the brand itself),
- enhancement of landscape points;
- accompaniment for the creation of new farms and new cellars, creating synergies and collaborations also with the cooperative sector;
- safeguard and care for small towns, hamlets, and institutional bodies close to the population;
- promotion of agricultural biodiversity and crop diversification (not only vineyards but horticultural,

cereals, fruit trees, medicinal essences ...)

The Brand should therefore have these characteristics: reward the choice and maintenance of agroecological techniques in the various farms, promote innovative development both on a tourist and cultural level, and include a multiplicity of elements and factors (cultural, food and wine, energy, landscape, related recycling, and bioeconomy).

### **ACTUATOR BODY**

The establishment of an implementing body, officially accredited for training activities, is envisaged through the association of existing entities:

- Social cellar (cooperative);
- APT (Local tourism agency);
- Private consortium (Cembrani DOC);
- Network of reserves;
- Other associations and organizations of the agricultural sector.

The idea is to create a permanent body for didactic and scientific support. This association body is made up of individuals with adequate skills from universities, research institutes, freelance professions, and consultancy.

## **AXIS 3: FACILITIES AND INFRASTRUCTURES USEFUL FOR THE COMMUNITY**

### **GENERAL OBJECTIVE:**

*Identification of a coordinated set of initiatives to create, adapt, and maintain structures and infrastructures, public and private, that contribute to the enhancement and use of the territory by the Cembra Valley community and its guests.*

#### **ACTION 3.1 - Redevelopment of porphyry quarries**

The abandoned or depleting porphyry quarries, present on the left orographic side of the valley, are commonly perceived as an element of damage landscaped. This negative element is also reflected in the image and perception of the wine landscape and the perceived quality of the wine product. With a view to collaboration between the various economic sectors for an ecological transition that affects the entire valley territory, it seems necessary to develop a project that can rethink, transform and redevelop these places.

### **ACTION 3.2 - Multifunctional use of collective areas for health and well-being**

The agroecological transition also recalls the need for greater personal care, health, and psychophysical well-being. The action involves the identification of a series of initiatives and their location in the "winescape" context to promote the well-being of people, the local population, and tourists, through recreational, emotional, and motor activities easily achievable by everyone.

### **ACTION 3.3 - Enhancement of cultural, landscape, and environmental elements to support the territorial brand.**

The action brings together coordinated interventions to make the historical, cultural, natural, and landscape elements usable by the visitor of Cembra valley. Through the inventory of the existing tangible and intangible assets and their description through cards and photographs, the visitor is accompanied along "slow" paths for an immersive use in the territory. The action also includes the creation of tools for computers and smartphones, translated into various languages to facilitate their identification on the territory and to convey information concerning the food and wine, and accommodation offered. This action will be carried out through an interdisciplinary working group where historical, cultural, and naturalistic skills are present, involving public and research structures, and a professional figure with narrative and emotional skills.

## **EXPECTED RESULTS:**

Following the coordinated implementation of the planned actions, the following results are expected in the short (1-2 years), medium (4-6 years), and long term (> 7 years).

## **SHORT-TERM STEPS/RESULTS**

Axis 1. At least 20 farms involved in the training and counseling initiatives.
The collection of 5 proposals for initiatives for the recovery of abandoned land, for the hydraulic arrangement of agricultural land with traditional techniques, reconstruction of damaged stonewall
Axis 2. Territorial planning activities are expected to be launched at least in the area of the individual municipalities in order to arrange and maintain the existing rural road network;
The initial promotion and creation of the multidisciplinary and interdisciplinary organizational subject in the form of a discussion table and inter-municipal work;
Axis 3. Identification of abandoned quarries available for redevelopment activities; Identification of available areas for multifunctional use and a first rough design of the installations and activities that can be hosted; Inventory of natural and cultural assets present in the area and design of IT tools.

## MID-TERM STEPS/RESULTS

Axis 1. Increase of the number of farms involved and realization of the intervention collected in the first phase.
Axis 2. The enhancement and promotion activities of the organizational subject will be fully operational;
Implementation of territorial planning activities spread throughout the territory of the Valley that can monitor the projects, follow the start and the conclusion and know how to pursue the path to create a specific Brand for the Cembra Valley;
Try to involve more and more community actors with the aim of making evident the enhancement of the characteristic elements both under the landscape and environmental level and under the historical and cultural one.
Axis 3. Publication of the call and implementation of project ideas and sharing of the design and executive products with local communities; expansion of wellness paths and activities and ordinary maintenance of those already prepared; creation of cards and IT tools.

## LONG-TERM STEPS/RESULTS

Axis 1. improvement of environmental and landscape aspects, increase in biodiversity, increase in cultivated areas, better safety of the territory.
Axis 2. The improvement and maintenance of inter-estate and inter-municipal roads;
The enhancement of existing paths and the new conception of specific itineraries;
The organic connection of the actors in the community and the possibility of using a common ideational and organizational table will lead to the maintenance of a specific brand peculiar to the Cembra Valley, recognized both within the territory and outside (nationally and internationally).
Axis 3. Completion of the implementation of at least one recovery initiative of a disused quarry and launch of subsequent ones based on the results of the pilot project; Networking of all wellness paths and their continuous maintenance and promotion; networking of all wellness paths and their continuous maintenance and promotion.

## INDICATORS

Axis 1. Number of farmers involved, degree of satisfaction of farmers, number of new initiatives launched, number of events.

Axis 2. Number of planning actions carried out, number of improvement and maintenance interventions of the territorial viability, number of actors involved in the ideational and organizational table, degree of satisfaction of

the actors involved, number of new initiatives launched, number of events and products.

Axis 3. Number of quarries redeveloped, number of initiatives and recreational activities launched, number of historical, cultural, and natural elements cataloged and networked.

## PERIOD OF IMPLEMENTATION

The implementation period of the entire action plan requires around 7-10 years but interesting and transformative results can be achieved within four years if the organizational subject start, takes initiative, and has the necessary financial support. The pilot area should take advantage of the new Common Agricultural Policy (CAP) programming period and in particular from the LEADER initiative. In this context, the ability of local administrators to adapt the timing of the action plan to those of EU rural development programming is of strategic importance.

## RESOURCES

In order to give operational substance to the proposed plan, a general financial plan was drawn up.

**Action 1.1:** Here is considered only a part of the whole activity foreseen in axis 1: € 15.000 for each year, related to training and counseling on landscape and habitat aspects.

**Action 2.1:** € 20,000 for the preliminary study and cartographic processing that highlights the network of paths and existing rural roads and the ongoing project initiatives for the construction of the cycle-pedestrian path and the river path along the Avisio stream. The analysis must also identify any corrections to the new design hypotheses and the necessary interventions to improve the connections between the infrastructures and make them compatible with the initiatives for the enhancement of the Cembra Valey territory and its products.

**Action 2.2:** € 50.000: of which € 30.000 for the birth of the subject; for consultancy activities and attendance fees of the scientific / management committee € 20.000.

**Action 2.3:** € 40,000: of which € 5.000 for website/web platform; brand or graphic brand € 5.000 drafting and printing of informative products € 25.000; events realization € 15.000.

**Action 3.1** preliminary planning 30.000 €; executive planning and tender € 70.000. Realization of a pilot initiative € 400.000; ordinary maintenance 25.000 €.

**Action 3.2** preliminary reconnaissance and planning 10.000 €; for each initiative is foreseen a maximum expenditure of € 50.000. Annual maintenance costs € 20.000.

**Azione 3.3.** Survey and cataloging € 15.000, planning and implementation of IT tools € 15.000, annual assistance for their functioning € 5.000

#### Annual budget breakdown:

**1st year:** (1.1) 15.000 + (2.1) 20.000 + (2.2) 30.000 + (2.3) 10.000 + (3.1) 30.000 + (3.2) 10.000 = **€ 115.000**

**2nd year:** (1.1) 15.000 + (2.2) 20,000 + (2.3) 15.000 + (3.1) 70.000 + (3.3) 15.000 = **€ 135.000**

**3rd year:** (1.1) 15.000 + (2.2) 20,000 + (2.3) 25,000 + (3.2) 50.000 + (3.3) 15.000 = **€ 110.000**

**subsequent years:** (1.1) 15.000 + (2.2) 20,000 + 15,000 + (3.1) 400.000 (pilot initiative) + (3.1) 25.000 + (3.2) 20.000 (3.3) 5.000 = **€ 100.000 + € 400.000** (pilot initiative).

## COLLABORATIONS AND RELATIONS

The possibility of success of the proposed action plan depends on the ability to create stable collaborations between the various actors and an appropriate organizational structure. The main organizations to involve in the implementation of the action plan are The Cooperative Social Cellar; the tourism promotion agency - APT, Universities (TN and BZ), Research institutes, professionals and consultants, Network of Reserves Torrente Avisio, Municipalities and Communities of the Valley, cultural associations and farmers representative organizations.

## CONCLUSIONS

The action plan for agroecological transition in the vineyards area of Val di Cembra embraces various aspects: agroecological practices exchange, evaluation, adaptation and diffusion, training for farmers, stakeholders participation, territorial planning, landscape maintenance and enhancement, habitat and environment protection. This report highlights the main activities related to traditional landscape maintenance and habitat protection. In the scope of activating a long-lasting and sustainable agroecological transition of Cembra Valley, the different aspects of the action plan are interconnected and the chances of success depend on the ability to integrate the various actions and define a coherent framework and coordinate the timing of its implementation in an appropriate manner. The identification of the most important activities for ensuring the desired agroecological transition to be able to sustain viticulture in the project area and simultaneously properly manage natural resources and preserve biodiversity needs the continuous active involvement of local stakeholders. This LAP has been compiled based on the previous activities conducted within ECOVINEGOALS projects and therefore represents the summary of the short, mid, and long-term steps whose implementation would open a perspective for the development of a pathway based on agroecological principles that encompass ecological, economic, and social issues.

The search for funds is an essential element to give concreteness and sustainability over time to the Action Plan. Another important aspect that can affect the implementation of the action plan is the coordination of the action plan with other initiatives on course within the valley as the wine routes and other initiatives for including historical, cultural, and landscape aspects in the wine production; the cycle paths which planning activity is on

course and the ordinary planning activity of each municipality for fostering and ensuring the ecological connection among the different habitat and the involvement of the farmers for finding the best solutions. Periodical multicriteria surveys should be done to update the picture and verify the efficacy of the action plan proposed, and possibly correct the strategies and the related actions.

## ADDENDUM

T2 – LAP according to the structure agreed:

### **Title of the pilot area: Cembra Valley**

- 1 Basic background of the pilot area (see pages. 5,6)
- 2 Strengths (the strongest points) and Weaknesses (the weakest points) at landscape level (see pag.7)
- 3 Objectives (see pages. 10,11,12,13)
- 4 Short terms steps(1-2 years) (see pag. 13)
  - 4.1 List of activities:
    - 1.1 TRAINING AND COUNSELING FOR LANDSCAPE AND HABITAT
    - 2.1 – INITIATIVES FOR TERRITORIAL PLANNING
    - 2.2 – PROMOTION AND IDENTIFICATION OF AN ORGANIZATIONAL SUBJECT
    - 2.3 – A BRAND FOR THE CEMBRA VALLEY
    - 3.1 - REDEVELOPMENT OF PORPHYRY QUARRIES
    - 3.2 - MULTIFUNCTIONAL USE OF COLLECTIVE AREAS FOR HEALTH AND WELL-BEING
    - 3.3 - Enhancement of cultural, landscape, and environmental elements to support the territorial brand.
  - 4.2 Description of each activity (details in a table per each activity)
- 5 Midterm term steps (3-5 years) (see pag. 14)
  - 5.1 List of activities, see 4.1
  - 5.2 Description of each activity (in a table see 4.2)
- 6 Long term steps (6 to 10 years) (see pag. 14)
  - 6.1 List of activities, see 4.1
  - 6.2 Description of each activity (in a table see 4.2)
- 7 Conclusions see pag.16

### 4.2 Activity description

Name	1.1 TRAINING AND COUNSELING FOR LANDSCAPE AND HABITAT
Time frame	The implementation period of the entire action plan requires around 7-10 years. We can distinguish three phases: setting up of the organizational structure and planning of training courses, farms involvement and the start of counseling activity, consolidation of relations between agriculture and tourism, signing of agreements between companies
Short description of activity	Construction of a permanent training system that accompanies farms in the path of agroecological transition and the search for forms of interaction and collaboration, in particular with the tourism sector, agri-food trade, and crafts, for the establishment of networks between companies and territorial agreements. Within the training and counseling activities for farmers, a special focus will be dedicated to increasing awareness of the importance of the maintenance of the traditional landscape and biodiversity and the intervention capacities. Landscape and agricultural biodiversity are closely related. This relationship is often complex as agricultural biodiversity contributes to the formation of the landscape and landscape variations affect biodiversity in a co-evolutionary process. There are strong links between the structural aspects of the landscape, the functions of

	<p>the ecosystems that compose it, and the landscape functions. From an ecological point of view, not only the presence or absence of certain landscape elements is important, but also their spatial configurations understood as shape, size, distance, and degree of connectivity between the different elements. A heterogeneous landscape, complex from an ecosystem point of view, generally presents a greater variety of habitats, a greater floristic, faunal, and agricultural biodiversity, and consequently a greater multifunctionality and in some cases a greater aesthetic/perceptual value. The main foreseen activities are the following:</p> <ul style="list-style-type: none"> <li>- Training activities for maintenance, restoration, and enhancement of dry stone walls and terraces.</li> <li>- Counseling activities for maintenance, restoration, and enhancement of traditional agricultural structures: country huts, scattered farms, and mountain huts (malghe).</li> <li>- Initiatives for the promotion of the recovery of abandoned land, the realization of hydraulic-agrarian arrangements respecting the traditional landscape, crop diversification, reintroduction of animal husbandry, increase of agricultural biodiversity, and landscape connectivity.</li> <li>- Realization of events and training courses on the environmental, historical, and cultural aspects of the Cembra Valley.</li> </ul>
Responsible person/institution	<p>The establishment of an implementing body, officially accredited for training activities is foreseen. The construction of the actuator body is envisaged through the association of the following existing entities:</p> <ul style="list-style-type: none"> <li>- Social cellar (cooperative);</li> <li>- APT (Local tourism agency);</li> <li>- Private consortium (Cembrani DOC);</li> <li>- Network of reserves;</li> <li>- Other associations and organizations of the agricultural sector.</li> </ul> <p>The idea is to create a permanent body for didactic and scientific support. This association body is made up of individuals with adequate skills from universities, research institutes, freelance professions, and consultancy.</p>
Objectives	<p><i>Goals we want to achieve (within 1 year; within 3-5 years)</i> In the short term, at least 20 farms are expected to start the agroecological transition process and network them; the collection of 5 proposals for initiatives for the recovery of abandoned land, for the hydraulic arrangement of agricultural land with traditional techniques, reconstruction of damaged stonewall; the dissemination of agroecological principles and good practices; the activation of relations between farms and companies active in tourist hospitality and trade in agri-food products; the collection of proposals for initiatives and interventions for the recovery of abandoned land, for the</p>

	hydraulic arrangement of agriculture with traditional techniques and for the realization of activities along the planned routes (bike, wine, river routes).
Expected results	In the long term, the improvement of environmental aspects concerning the soil (increase in organic matter), the reduction of chemicals used in agriculture with benefits for air and water quality, and the increase of agricultural and naturalistic biodiversity with an improvement of the agricultural landscape are expected; improvement of economic and social cohesion and awareness.
Indicators	<i>Concrete measurable indicators that will help you to evaluate if the objectives and results have been achieved</i> Number of farmers involved, degree of satisfaction of farmers, number of new initiatives launched, number of training courses and consultancies.
Key stakeholders/partners involved	<i>Stakeholders that are crucial for achieving the expected results:</i> farmers; Social cellar (cooperative); APT (Local tourism agency); Private consortium (Cembrani DOC); Network of reserves; other associations and organizations of the agricultural sector, universities, and research institutions.
Connectivity to other activities	<i>Other activities that could be connected to this activity to achieve the main objective: axis 2</i>
Potential resources	<i>Different investments that you will need to implement this activity (economic, social, technical, logistic, and similar resources)</i> Here is considered only a part of the whole activity foreseen in axis 1: € 15.000 for each year, related to training and counseling on landscape and habitat aspects. For the starting activities, the resources are in Action 2.2: € 50.000: of which € 30.000 for the birth of the subject; for consultancy activities and attendance fees of the scientific / management committee € 20.000.
Potential transfer of good practices	The training courses and the counseling activity will analyze, test and evaluate the following best practices:

	Agroforestry in vineyards
	Vineyard canopy management
	Bio-stimulants in viticulture
	Soil erosion prevention and monitoring of soil fertility
	Cover crops and viticulture
	Maintenance of traditional elements of “winescape” - dry stone walls and wood poles
	Green manure in vineyards
	High Nature Value Farming (HNV) in vineyard regions
	Mechanical inter-row weed control and “pyro-weeding”
	Sustainable irrigation in vineyard
	Mating disruption
	Bird nests and shelters for bees and pollinating insects
	DSS to reduce pesticides in viticulture
	Resistant grape varieties
	Organic-district/Eco-region
	Participatory Guarantee Systems (PGS)
	Certification of biodiversity in vineyards
	The “Landscape Board Game”
	Social learning and knowledge generation in viticulture
	Wine routes as promotional tools for viticulture
	Communication strategy for Agroecological Products
	Land use maintenance
<i>Identify potential barriers</i>	

Name	<b>2.1 – INITIATIVES FOR TERRITORIAL PLANNING</b>
Time frame	The implementation period of the entire action plan requires around 7-10 years. In the short term,(1-2 years) territorial planning is expected to be launched at least in the area of the individual municipalities in order to fix and maintain the existing rural road system; initially the promotion and creation of the multidisciplinary and interdisciplinary organizational subject in the form of a discussion and work table inter-municipal is foreseen.
Short description of activity	The activity is aimed at the reorganization of what is already existing in the Cembra Valley and at the planning of the necessary elements for the enhancement and promotion of the material and intangible resources of the Valley. In particular, there is a need for an interoperable path road link between the municipalities. This turns out to be the most obvious lack of the area: in fact, this lack does not allow the enhancement of the territory also from a tourist point of view. With the strengthening of the existing road axes it is consequently possible to create landscape-environmental and historical-cultural paths and itineraries that allow the achievement of the objective of this axis. At the same time, constant ordinary and extraordinary maintenance work of the rural road network

	is necessary with a multifunctional logic. To do this it is necessary to commit both public resources and resources that may come from the private business world (porphyry quarries). With this action, a real enhancement and networking of historical-cultural structures are implemented.
Responsible person/institution	Consortium among Valley community, municipalities, farmers, wine cooperative; APT (Local tourism agency; Private consortium (Cembrani DOC); Network of reserves; Other associations and organizations of the agricultural sector.
Objectives	In the medium term, the enhancement and promotion of the organizational subject are expected to be put into operation. This new subject can promote territorial planning and spread initiatives throughout the territory of the Valley and know how to monitor the projects, follow the beginning and conclusion and know how to pursue the path for the creation of a specific Brand for the Val di Cembra. In fact, in the medium term, the subject will have to try to involve more and more actors of the community with the aim of making evident the enhancement of the characteristic elements both under the landscape and environmental level and under the historical and cultural one.
Expected results	In the long term, the improvement and maintenance of the road network inter-farm and inter-municipal, the enhancement of existing routes and the new design of specific itineraries, the organic connection of the actors of the community, and the possibility of taking advantage of a common ideational and organizational table will lead to the maintenance of a specific and peculiar brand for the Val di Cembra, recognized both within the territory and outside (national and international).
Indicators	Number of planning actions taken, number of improvements and maintenance of territorial roads, number of actors involved in the ideation and organizational working table, degree of satisfaction of the actors involved, number of new initiatives launched, and number of events and products.
Key stakeholders/partners involved	farmers, wine cooperative; APT (Local tourism agency)
Connectivity to other activities	<i>Other activities that could be connected to this activity to achieve the main objective: activity 2.2;</i>
Potential resources	<i>Different investments that you will need to implement this activity (economic, social, technical, logistic and similar resources) € 20,000 for the preliminary study and cartographic processing that highlights the network of paths and existing rural roads and the ongoing project initiatives for the construction of the cycle-pedestrian path and the river path along the Avisio stream. The analysis must also identify any corrections to the new design hypotheses and the necessary interventions to improve the connections between the infrastructures and make them compatible with the initiatives for the enhancement of the Cembra Valley territory and its products.</i>
Potential transfer of	<i>Any good practice that you can refer to and use (search 29 best practices)</i>

good practices	<i>Identify potential barriers</i> Collective learning and participated planning.
Potential risks and obstacles	<i>Identify potential barriers and obstacles that would prevent you from carrying out the activity.</i> Conflicts of interest among different municipalities,

Name	<b>2.2 – PROMOTION AND IDENTIFICATION OF AN ORGANIZATIONAL SUBJECT</b>
Time frame	The implementation period of the entire action plan requires around 7-10 years. In the short term,(1-2 years) the promotion and identification of a multidisciplinary and interdisciplinary organizational subject are expected to be realized. Initially, the constitution of a discussion and working table inter-municipalities is foreseen.
Short description of the activity	The community feels the need to promote and identify an organizational subject capable of networking initiatives in the agricultural and tourism sector, creating synergies and collaborations, developing promotion and training as well as community awareness. According to the community, an inter-municipal table must therefore be promoted that includes public and private subjects and which initially has two objectives: concrete actions that have a beginning and an end and intermediate and final checks that allow monitoring the various individual actions. This point has been underlined by many members of the community who complain about the presence of projects and actions that have never ended, started, and then suspended or abandoned: this modality of intervention on the territory blocks any possibility of tourist cultural development. The multidisciplinary and interdisciplinary table would also have the general objective of teaching the different actors and therefore the whole community to work step by step together.
Responsible person/institution	Consortium among Valley community, municipalities, farmers, wine cooperative; APT (Local tourism agency; Private consortium (Cembrani DOC); Network of reserves; Other associations and organizations of the agricultural sector.
Objectives (link it with objectives under 3)	Identification of an organization structure and a coordinated set of initiatives to create, adapt and maintain structures and infrastructures, public and private, that contribute to the enhancement and use of the territory by the Cembra Valley community and its guests. The subject will have to involve more and more actors of the community with the aim of making evident the enhancement of the characteristic elements both under the landscape and environmental level and under the historical and cultural one.
Expected results	Better integration of the resources, identification of the responsibilities and competencies, and definition of an operative program. In the medium term, the enhancement and promotion of the organizational subject are expected to be put into operation, so that it can implement territorial planning spread throughout the territory of the Valley and to promote, manage and monitor the projects, follow them from the beginning to the conclusion and know how to pursue the path for the creation of a specific Brand for the Cembra Valley.
Indicators	<i>Concrete measurable indicators that will help you to evaluate if the</i>

	<i>objectives and results have been achieved: by monitoring and reporting the step-by-step construction of the consortium: preliminary agreement, a draft of the statute, adoption of adhesion acts from public bodies, and formal constitution.</i>
Key stakeholders/partners involved	<i>Stakeholders that are crucial for achieving the expected results</i> Consortium among Valley community, municipalities, farmers, and wine cooperative; APT (Local tourism agency; Private consortium (Cembrani DOC); Network of reserves; Other associations and organizations of the agricultural sector.
Connectivity to other activities	<i>Other activities that could be connected to this activity to achieve the main objective:2.1</i>
Potential resources	<i>Different investments that you will need to implement this activity (economic, social, technical, logistic, and similar resources)</i> : € 50.000: of which € 30.000 for the birth of the subject; for consultancy activities and attendance fees of the scientific / management committee € 20.000.
Potential transfer of good practices	<i>Any good practice that you can refer to and use (search 29 best practices)</i> Biodistrict experiences, cooperative and social learning, participatory guarantee systems (PGS).
Potential risks and obstacles	<i>Identify potential barriers and obstacles that would prevent you from carrying out the activity: adoption of a general agreement among stakeholders overcoming divisions and single interests.</i>

Name	<b>2.3 – A BRAND FOR THE CEMBRA VALLEY</b>
Time frame	<i>Time in which you will develop this activity</i>
Short description of the activity	<p>The general activity involves the creation of a specific brand or brand that characterizes and identifies the main peculiarities of the Valley, favoring the creation of new business ideas. For this purpose, it is necessary both a training activity for the tour operators of the Valley and more generally a training activity for the citizens of the territory aimed at promoting the growth of awareness of the environmental and cultural value of the landscape and material and immaterial heritage of the Valley. It will therefore be necessary to intervene on specific peculiarities of the territory. In particular, the following sub-actions have been identified:</p> <ul style="list-style-type: none"> <li>- training activity on the landscape and cultural aspects of the Val di Cembra</li> <li>- restoration and enhancement of traditional agricultural structures, stone walls, rural buildings, and water storage;</li> <li>- the creation of refreshment points and sale of clearly identifiable local products (from the brand itself),</li> <li>- enhancement of landscape points;</li> <li>- accompaniment for the creation of new farms and new cellars, creating synergies and collaborations also with the cooperative sector;</li> <li>- safeguard and care for small towns, hamlets, and institutional bodies close to the population;</li> <li>- promotion of agricultural biodiversity and crop diversification (not only</li> </ul>

	vineyards but horticultural, cereals, fruit trees, medicinal essences ...) The Brand should therefore have these characteristics: reward the choice and maintenance of agroecological techniques in the various farms, promote innovative development both on a tourist and cultural level, and include a multiplicity of elements and factors (cultural, food and wine, energy, landscape, related recycling, and bioeconomy).
Responsible person/institution	Consortium among Valley community, municipalities, farmers, wine cooperative; APT (Local tourism agency; Private consortium (Cembrani DOC); Network of reserves; Other associations and organizations of the agricultural sector. See 2.2.
Objectives (link it with objectives under 3)	The organic connection of the actors of the community and the possibility of taking advantage of a common ideational and organizational table will lead to the maintenance of a specific and peculiar brand for the Val di Cembra, recognized both within the territory and outside (national and international).
Expected results	Development and maintenance of a brand for the Cembra Valley
Indicators	<i>Concrete measurable indicators that will help you to evaluate if the objectives and results have been achieved:</i> reporting and monitoring the advancement of the action: brand definition, adoption of the rules, collection of subscriptions, brand promotion, networking and communication.
Key stakeholders/partners involved	Consortium among Valley community, municipalities, farmers, wine cooperative; APT (Local tourism agency; Private consortium (Cembrani DOC); Network of reserves; Other associations and organizations of the agricultural sector. See 2.2.
Connectivity to other activities	<i>Other activities that could be connected to this activity to achieve the main objective: see 2.1, 2.2</i>
Potential resources	<i>Different investments that you will need to implement this activity (economic, social, technical, logistic and similar resources)</i> : € 40,000: of which € 5.000 for website/web platform; brand or graphic brand € 5.000 drafting and printing of informative products € 25.000; events realization € 15.000.
Potential transfer of good practices	<i>Any good practice that you can refer to and use (search 29 best practices)</i> Biodistrict experiences, cooperative and social learning, participatory guarantee systems (PGS).
Potential risks and obstacles	<i>Identify potential barriers and obstacles that would prevent you from carrying out the activity.</i> External barriers: concurrency with other brands; Internal barriers: agreement among stakeholders on brand disciplinary.

Name	<b>3.1 - Redevelopment of porphyry quarries</b>
Time frame	The implementation period of the entire action plan requires around 7-10 years. In the short term,(1-2 years) the identification of abandoned quarries and a first Ideas competition is expected to be realized. Found rising and co-financing searches are promoted.
Short description of activity	The abandoned or depleting porphyry quarries, present on the left orographic side of the valley, are commonly perceived as an element of damage landscaped. This negative element is also reflected in the image and perception of the wine landscape and the perceived quality of the

	wine product. With a view to collaboration between the various economic sectors for an ecological transition that affects the entire valley territory, it seems necessary to develop a project that can rethink, transform and redevelop these places.
Responsible person/institution	Municipalities and Cembra consortium
Objectives (link it with objectives under 3)	Identification of abandoned quarries available for redevelopment activities. The cultural, historical and economic value of this activity must be rethought in an ecological key in order to return these spaces, and the perception that the inhabitants have about them, as an opportunity for development, preservation of identity memory and revival also sectoral tourism
Expected results	Completion of the implementation of at least one recovery initiative of a disused quarry and launch of subsequent ones on the basis of the results of the pilot project.
Indicators	<i>Concrete measurable indicators that will help you to evaluate if the objectives and results have been achieved</i> reporting and monitoring the advancement of the action: quarry identifications, tender for ideas competition, found rising, pilot action implementation and evaluation.
Key stakeholders/partners involved	<i>Stakeholders that are crucial for achieving the expected results</i> Consortium among Valley community, municipalities, farmers, wine cooperative; APT (Local tourism agency; Private consortium (Cembrani DOC); Network of reserves; Other associations and organizations of the agricultural sector
Connectivity to other activities	<i>Other activities that could be connected to this activity to achieve the main objective: 3.2;3.3</i>
Potential resources	<i>Different investments that you will need to implement this activity (economic, social, technical, logistic and similar resources)</i> preliminary planning 30.000 €; executive planning and tender € 70.000. Realization of a pilot initiative € 400.000; ordinary maintenance 25.000 €.
Potential transfer of good practices	<i>Any good practice that you can refer to and use (search 29 best practices)</i> Agroforestry, participatory planning
Potential risks and obstacles	<i>Identify potential barriers and obstacles that would prevent you from carrying out the activity: high costs, found rising</i>

Name	<b>3.2 - Multifunctional use of collective areas for health and well-being</b>
Time frame	The implementation period of the entire action plan requires around 7-10 years. In the short term,(1-2 years) the identification of available areas and a first rough design of the installations and activities that can be hosted, in the medium term expansion of wellness paths and activities; ordinary maintenance of those already prepared, in the long term networking of all wellness paths and their continuous maintenance and promotion.
Short description of	The agroecological transition also recalls the need for greater personal

activity	care, health, and psychophysical well-being. The action involves the identification of a series of initiatives and their location in the “winescape” context to promote the well-being of people, the local population, and tourists, through recreational, emotional, and motor activities easily achievable by everyone.
Responsible person/institution	Consortium among Valley community, municipalities, farmers, wine cooperative; APT (Local tourism agency; Private consortium (Cembrani DOC); Network of reserves; Other associations and organizations of the agricultural sector
Objectives (link it with objectives under 3)	In the short term,(1-2 years) the identification of available areas and a first rough design of the installations and activities that can be hosted, in the medium term expansion of wellness paths and activities; ordinary maintenance of those already prepared, in the long term networking of all wellness paths and their continuous maintenance and promotion.
Expected results	It is a matter of making bio-natural and sensory disciplines compatible with the agricultural environment through the enhancement of the agroecological approach to make the benefit of the ecological transaction multiple and synergistic. The action will be activated through a call for proposals and ideas involving the local community and farm owners and managers of collective areas.
Indicators	<i>Concrete measurable indicators that will help you to evaluate if the objectives and results have been achieved:</i> Number of initiatives and leisure activities launched.
Key stakeholders/partners involved	Consortium among Valley community, municipalities, farmers, wine cooperative; APT (Local tourism agency; Private consortium (Cembrani DOC); Network of reserves; Other associations and organizations of the agricultural sector
Connectivity to other activities	<i>Other activities that could be connected to this activity to achieve the main objective: 3.1, 3.3</i>
Potential resources	<i>Different investments that you will need to implement this activity (economic, social, technical, logistic and similar resources)</i> preliminary reconnaissance and planning 10.000 €; for each initiative is foreseen a maximum expenditure of € 50.000. Annual maintenance costs € 20.000.
Potential transfer of good practices	<i>Any good practice that you can refer to and use (search 29 best practices)</i> High Nature Value Farming, social learning and knowledge generation in agriculture
Potential risks and obstacles	<i>Identify potential barriers and obstacles that would prevent you from carrying out the activity:</i> innovative approach, scarce experiences by farmers, need of specific competences.

Name	<b>3.3 - Enhancement of cultural, landscape, and environmental elements to support the territorial brand.</b>
Time frame	The implementation period of the entire action plan requires around 7-10 years. In the short term,(1-2 years) the inventory and description of the cultural and natural goods, in the medium term the creation of tools for computers and smartphones; ordinary maintenance of tools and services

	In the long term networking with wellness paths, wine routes, bike routes and their inclusion in the “area brand” maintenance and promotion.
Short description of activity	The action brings together coordinated interventions to make the historical, cultural, natural, and landscape elements usable by the visitor of Cembra valley. Through the inventory of the existing tangible and intangible assets and their description through cards and photographs, the visitor is accompanied along "slow" paths for an immersive use in the territory. The action also includes the creation of tools for computers and smartphones, translated into various languages to facilitate their identification on the territory and to convey information concerning the food and wine, and accommodation offered. This action will be carried out through an interdisciplinary working group where historical, cultural, and naturalistic skills are present, involving public and research structures, and a professional figure with narrative and emotional skills.
Responsible person/institution	Consortium among Valley community, municipalities, farmers, wine cooperative; APT (Local tourism agency; Private consortium (Cembrani DOC); Network of reserves; Other associations and organizations of the agricultural sector
Objectives (link it with objectives under 3)	A better identification, use and integration of territorial capitals, creation of tools and services for visitors, networking activities and farmers involvement.
Expected results	Inventory of natural and cultural assets present in the area and design of IT tools; creation of informative cards and IT-WEB tools
Indicators	<i>Concrete measurable indicators that will help you to evaluate if the objectives and results have been achieved:</i> Number of historical, cultural and natural elements catalogued and networked.
Key stakeholders/partners involved	Consortium among Valley community, municipalities, farmers, wine cooperative; APT (Local tourism agency; Private consortium (Cembrani DOC); Network of reserves; Other associations and organizations of the agricultural sector, consultants.
Connectivity to other activities	<i>Other activities that could be connected to this activity to achieve the main objective:</i> 3.1, 3.2
Potential resources	<i>Different investments that you will need to implement this activity (economic, social, technical, logistic and similar resources)</i> Survey and cataloging € 15.000, planning and implementation of IT tools € 15.000, annual assistance for their functioning € 5.000
Potential transfer of good practices	<i>Any good practice that you can refer to and use (search 29 best practices)</i> Cooperative and social learning
Potential risks and obstacles	<i>Identify potential barriers and obstacles that would prevent you from carrying out the activity:</i> no technical obstacles, innovative for farmers.

It is believed that the coordinated set of actions described above will contribute significantly to the creation of a territorial identity in the name of an ecological approach and respect and enhancement of the natural and cultural elements of the valley.



# Ecological Vineyards Governance Activities for Landscape's Strategies

Deliverable T2.3.1.

## Local action plan for conservation of landscape and habitats in viticultural areas and for valorisation of ecosystem services in Vipava hills

Responsible Partner  
ZRC SAZU

FINAL VERSION

6. 12. 2022

## **BASIC PROJECT INFORMATION:**

PROGRAMME CALL: INTERREG V-B Adriatic-Ionian ADRION

Project Acronym ECOVINEGOALS

Project Number: 866

Programme Priority Axis: 2

Start – End Date: 01.03.2020 – 31.08.2022

Total budget: EUR 1 939 505.59

ERDF: 1 399 759.25 IPA: 248 820.5

**Lead Partner Organisation: LAG Eastern Venice, Italy**

Url: [www.ecovinegoals.interregadrion.eu](http://www.ecovinegoals.interregadrion.eu)

## **DOCUMENT INFORMATION**

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<b>Dissemination Level</b>	PP (Partnership document)

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December, 2020

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## Project Summary

ECOVINEGOALS promotes sustainability and resilience in the winemaking industry by encouraging the transition of intensive viticulture towards agroecological management systems that protect natural habitats and landscapes, while reducing chemical and fossil fuel inputs and harmful emissions. The project aims to enhance stakeholders' skills in participatory local governance, to strengthen transnational cooperation and provide specific transnational instruments to promote, support and manage the agroecological transition.

### **Expected results**

- Sharing between partners in the ADRION countries of fundamental concepts and practices necessary for the transition from intensive viticulture management systems, towards agroecological management methods.
- Improvement of the participatory local governance skills of decision makers and all other viticulture stakeholders, both public and private, to jointly develop and define strategies and plans aiming to protect natural habitats and rural landscapes.
- Transnational communication, cooperation, and exchange between regional authorities and civil society organizations concerning common objectives to protect vulnerable environments, to promote ecosystem services, to prevent or mitigate climate change, and to avoid social conflicts in land use.
- An increase in the number and quality of tools and strategies available to support the planning and management of the agroecological transition of viticulture systems in the region.

### **Partnership:**

<b>PP1- LP</b>	<b>LAG EASTERN VENICE, VEGAL (IT)</b>
PP2	Autonomous Province of Trento, PAT (IT)
PP3	Chamber of Agriculture and Forestry of Slovenia, KGZS-Zavod GO (SI)
PP4	Research Centre of the Slovenian Academy of Sciences and Arts, ZRC SAZU (SI)
PP5	Agency for rural development of Istria Ltd. Pazin, AZRRI (HR)
PP6	Association for the promotion of employment, vocational training and education, INFORMO (HR)
PP7	Business Development Center Kragujevac, BDCKG (RS)
PP8	Foundation Business Start-up Center Bar, BSC BAR (ME)
PP9	Municipality of Bar, BAR (ME)
PP10	Mediterranean Agronomic Institute of Chania, CIHEAM MAICh (EL)

### Associated Partners (APs):

General Union Cisl Cultivators Venice (IT)
Bio district of production and biological community of central-eastern Venice - BIO VENICE (IT)
IAL - Innovation Learning Work S.r.l. - Social enterprise (IT)
AIAB-Italian Organic Agriculture Association (IT)
Agroecologiki SP (EL)
Municipality of Topola (RS)
Šumadija winemakers association (RS)
Ministry of Agriculture and Rural Development (HR)
Agroecology Europe (BL)

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## **INTRODUCTION**

This document presents a local action plan for conservation of landscape and habitats in the Slovenian pilot area of the Vipava Hills. It is based on the landscape analysis presented in dT2.2.2 and three participatory workshops presented in dT3.3.1. The aim of this local action plan is to present objectives and show steps and activities needed for preservation and improvement of viticulture landscape and habitats (Natura 2000) on the pilot area of the Vipava Hills. Together with local action plans for other areas it will serve as a basis for recommendations and guidelines for enhancement of traditional landscapes and habitats in wine-growing areas of the ADRION region (dT2.3.3).

## BASIC CHARACTERISTICS OF THE VIPAVA HILLS

Viticulture is an agricultural industry that has shaped the Vipava Valley since Celtic times. In the Middle Ages, Vipava wine was sold as far as the German and Czech provinces. The quality of the renowned Vipava wines was reported by the Carniola nobleman and polyhistor J. V. Valvasor in 1689, and was also mentioned by the Baroque preacher and writer Janez Svetokriški. Two locals associated with viticulture and vines are worth mentioning. The first is Matija Vertovec, a priest born in Šmarje near Vipava, an expert in various fields, who in 1844 wrote *Vinoreja za Slovence* (The Art of Winegrowing for Slovenians), the first technical book on viticulture in Slovene, in which he also described grape varieties. The second is the priest and composer Stanko Premrl, born in Podnanos, who set France Prešeren's poem *Zdravljica* (A Toast) to music in 1905. Its 7<sup>th</sup> stanza became the Slovenian anthem in 1989, and in 2020 the EU awarded *Zdravljica* the European Heritage Label for being a European value.

The Vipava Hills, the selected pilot area of the project, are part of the Vipava Valley wine-growing area in the Primorska wine-growing region. It covers an area of around 70 km<sup>2</sup> or 6860 ha in the south-west of Slovenia. It belongs to the Mediterranean Hills. The Vipava Hills are lithologically quite a uniform Tertiary felsic world, sandwiched between the high karst plateaus of Trnovo Forest and Nanos in the north-east and the Trieste-Komen plateau or Karst in the south-west. Its specific natural conditions are determined by: its location at the junction of three European macro-regions – the Alpine, Mediterranean and Dinaric, its position at the meeting point of continental and Mediterranean air masses, and its many modifications due to micro-relief, microclimatic, and micropedological peculiarities. The hills are only 15 km air distance from the sea, and the influence of the sea on the Vipava area extends from the Gulf of Trieste through the Friulian plain up the Soča valley. The Vipava river, which channels off all the water of the Vipava Hills, also flows into the Soča river.

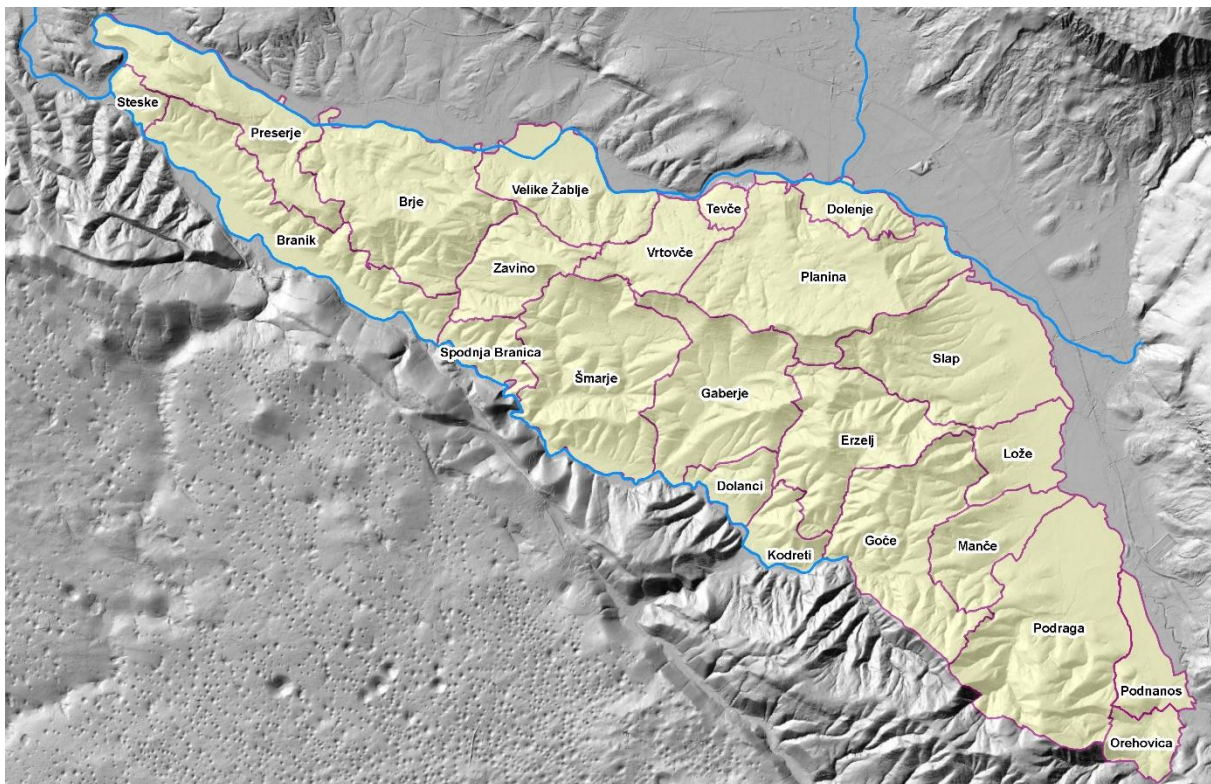


Image 1: The Vipava Hills, ECOVINEGOALS pilot area.

The Vipava Hills have a sub-Mediterranean climate with high insolation (average 4276 MJ/m<sup>2</sup> or 6.6% more than the Slovenian average), mild winters and dry, hot summers (the average annual temperature is 12 °C, 21.2 °C in July, and 3.1 °C in January). It also has favourable topography (between 60 and 550 m above sea level, average altitude 206 m, average slope 31%) and soil conditions, so it is not surprising that viticulture has a very long tradition here. Vipava wines are of high quality and comparable to the finest wines in the

world. Merlot, Malvasia, Sauvignon and Rebula are the most widespread varieties, while the old indigenous varieties of Zelen and Pinela are of outstanding importance. In addition to these, Vipava wine-growers are working hard to preserve other old indigenous varieties – Klarnica, Poljšakica, Pergolin, Čedadjc, Ošip, Glera, etc. The current data on wine production in the Vipava Valley wine-growing area and in the Vipava Hills are summarised in Table 1.

Table 1: Current data on wine production in the Vipava Valley wine-growing area and in the Vipava Hills pilot area

		The Vipava Valley wine-growing area	The Vipava Hills pilot area
<b>Total area (ha)</b>		27.852	6862,5
<b>Agricultural land (ha)</b>		11.000	3166,3
<b>Number of farms</b>		2800	839
<b>Number of vineyards</b>		4500	1846
<b>Number of wine-growers</b>		1900	587
<b>Area of vineyards (ha)</b>		2100	936,4
		7.5%	13.6%
<b>Average area of vineyards per farm (ha)</b>		1.2	1.6
<b>Proportion of vineyards by slope class</b>	< 15 %	50%	52%
	15 – 30 %	38%	25%
	> 30 %	12 %	23%
<b>Area of terraced vineyards (ha)</b>		1320	572.7
<b>Share of terraced vineyards of total vineyards (%)</b>		62.9%	61.2%
<b>Area of organic vineyards (ha)</b>		160	84,6
<b>Average annual grape yield (t)</b>		14.000	6200
<b>Average annual grape yield (t/ha)</b>		6,7	6,6
<b>Average annual quantity of wine produced (l)</b>		9.000.000	4.000.000
<b>Average annual quantity of wine produced (l/ha)</b>		4285,7	4273,5
<b>Recommended (main) varieties</b>		Rebula, Malvasija, Welschriesling, Sauvignon, Pinela, Zelen, Pinot Blanc, Pinot Gris, Chardonnay, Merlot, Barbera, and Cabernet Sauvignon	
<b>Allowed varieties</b>		Sauvignon Blanc, Yellow Muscat, Picolit, Vitovska Grganja, Pinot Noir, Cabernet Franc, Refosco, Syrah, Glera, Klarnica, Pergolin, Poljšakica, Viognier, Fleurta, Soreli, Pokalca, Gamay, Marselan, Merlot Kanthus	
<b>Old, indigenous varieties</b>		Rebula, Zelen, Pinela, Klarnica, Poljšakica, Pergolin, Glera, Vitovska Grganja	
<b>Distribution of the most important varieties</b>		Merlot (18.8%)	Merlot (12.3%)
		Malvazija (11.1%)	Sauvignon (12.2%)
		Sauvignon (10.8%)	Malvazija (10.6%)
		Rebula (10.0%)	Rebula (10.6%)
		Zelen (3.4%)	Zelen (7.0%)
		Pinela (2.7%)	Pinela (5.8%)
<b>Share of local varieties</b>		16%	23%

An important feature of the wine-growing in Vipava are the *osmica* events, which emerged at the end of the 18<sup>th</sup> century by the decree of the Empress Maria Theresa. They allowed wine-growers to sell wine tax-free for eight days a year. Today, farms still sell local wines at the *osmicas*, which last ten or twice ten days a year. At the same time, they offer visitors home-grown produce – cured meats, cheese, homemade bread, and simple dishes. In order to promote the sale of wine and encourage wine-growing activities, wine roads were established across the Vipava Hills towards the end of the 20<sup>th</sup> century, linking the hills' natural and cultural attractions as well as wine and gastronomy providers. Tourists, hikers and cyclists can explore a landscape that boasts being mosaic, with great biodiversity and a high degree of naturalness. The region is enriched by

picturesque Mediterranean villages and hamlets with centuries-old wine cellars and churches on the hilltops. And on special occasions it is also possible to explore the many preserved customs and traditions linked to vines and wine.



Image 2: Vineyards are the key element of the Vipava cultural landscape. (photo: Maja Topole)

## ADVANTAGES AND WEAKNESSES OF THE VIPAVA HILLS CULTURAL LANDSCAPE

### 3.1 The main advantages

The main advantages of the area are the favourable natural conditions. The landform, the sunny slopes, the altitudes and the slope are most suitable for growing vines, which cover 13.6% of the total land area. As many as two thirds of the vineyards are at altitudes of 100-250 m, with the average altitude of 187 m and the average slope of 20.3%. 9% of the vineyards are under organic cultivation (compared with 5.1% in Slovenia). A good fifth of the Vipava Hills are terraced. They account for 61.2% of all vineyards and 39.1% of all existing terraces. The remaining terraces are extensive meadows (25.4%), orchards (5.8%), arable land (4%), built-up areas (2.8%), and other (6.4%). 15.5% of the terraces have lost their agricultural function: 11.4% are covered by forest, and 4.1% of the terraces are still in the process of becoming overgrown. Forest covers 49% of the total area, extensive meadows and pastures 17%, and land being overgrown 2.1%. Only 21% of the land is intensively cultivated – arable land, conventional vineyards, orchards and berry-growing, the rest is built-up land (4.4%), and other uses (4.4%).

The Vipava Hills are an area with a high degree of naturalness and a high proportion of Natura 2000 sites (46%), which are undergoing important ecological processes. The very well preserved nature of the pilot area makes it a favourable area for the transition to agroecological viticulture. However, as mentioned in the next section, this advantage is currently still a weakness.

Furthermore, the wider Vipava Valley area also has the advantage of a rich tradition of agricultural education, which has had a significant impact on viticulture and wine-making. The first Slovenian agricultural school was established in the Vipava region operated during the period of 1873-1886. The importance of viticulture here is also reflected in the fact that today Vipava is home to the only Slovenian faculty dedicated specifically to viticulture, wine-making and wine marketing. Since 1952, the Institute of Agriculture and Forestry Nova Gorica, with its departments and staff of experts in all branches of agriculture, has also played an important role in the dissemination of agricultural knowledge. In 1894, the first Slovenian wine-growing cooperative was founded in Vipava. In 1903, the first cooperative winery was established there. The Vipava Agricultural Cooperative, though on a smaller scale than in the past, still unites and represents the interests of some 600 farmers in the Vipava Valley. The establishment of the grapevine nursery in Vrhopolje near Vipava also dates back to the beginning of the 20<sup>th</sup> century. Today, the Vrhopolje Grapevine Nursery Cooperative is the largest producer of grapevine scions in Slovenia, with more than 1.5 million scions a year. There are three other grapevine nurseries in Vrhopolje and Budanja, making the Vipava Valley an area with the highest production of grapevine scions in Slovenia.

### 3.2 The main weaknesses

The Vipava Hills also face some difficulties or obstacles. Some of these are related to natural conditions. Although the annual rainfall of around 1,500 mm is relatively high, it is not distributed most favourably and properly for the growth of all agricultural crops. With climate changes or climate warming, the number of extreme events (bora winds, droughts, hail, frost, wind erosion) is also increasing.

The natural conditions that require the area to be terraced entail a financial burden for the arrangement of new vineyards on terraces. On overgrown terraces, or even terraces already under forests, wine-growers will not be able to arrange new vineyards without financial help.

An additional weakness, which could become an advantage, is the high naturalness of the area and the high proportion of Natura 2000 sites (already mentioned as advantages). The high naturalness of the area indicates favourable conditions for the existence of many plant and animal species, some of which cause damage to nearby vineyards. This challenge must not be placed solely on the shoulders of the wine-growers, but must be managed effectively at several levels simultaneously.

Additional causes of weaknesses lie in social conditions. The population has shrunk by a third in the last 120 years (from 8441 in 1900 to 5511 in 2020), but has shown minimal growth in the last 20 years. The age structure is not favourable; in particular, there is lack of young people aged between 10 and 30. Young people are leaving farming for better paid jobs outside agriculture. Vineyard land in less favourable locations, fragmented and in small areas, remote and inaccessible, is being abandoned. In 2020, 2% of land was in the process of becoming overgrown. Between 2002 and 2020, the area under vineyards decreased by 14%, arable land by 40%, and grassland by 11%. Nevertheless, farmers point out that it is difficult to buy a vineyard, especially a large area, or to change the use of the land. If the land has become overgrown and has been converted to forest, the process of conversion back to farmland is very lengthy and expensive (sometimes not even possible), and there are restrictions due to Natura 2000. As much as 46.1% of the Vipava Hills are an area of Natura 2000. Ownership of vineyards is a major problem; older people are reluctant to sell or to leave them to young people, and problems arise especially in the case of co-ownership. Recently, the area has also been pestered by purchases by foreigners, who are able to pay considerably more for good agricultural land than the locals.

Table 2: Advantages and weaknesses of the Vipava Hills for the conservation of the cultural landscape

Advantages	Weaknesses
<ul style="list-style-type: none"> <li>• a large proportion of the natural area – forests, a great diversity of tree species: hornbeam (white, black), small ash, oak (Sessile oak, English oak, Turkey oak), wild cherry, field maple, black alder, black rocut, chestnut;</li> <li>• local wine varieties, in particular the important and unique Pinela and Zelen, 80% of which are produced in the pilot area;</li> <li>• the tradition of grape processing, the preserved old stone vaulted cellars;</li> <li>• Šmarje – the birthplace of Matija Vrtovec, author of <i>Vinoreja</i>, within the pilot area;</li> <li>• »healthy« environment without industrial plants and major traffic routes;</li> </ul>	<ul style="list-style-type: none"> <li>• high production costs associated with terrace cultivation, severe fragmentation, the clearing of overgrown vineyards;</li> <li>• low prices for grape and partly wine;</li> <li>• the region's lack of recognition as a wine-growing area;</li> <li>• poor knowledge of agroecology among wine-growers;</li> <li>• large population of wild animals – deer, wild boar, etc. – which cause damage to the vineyards, necessitating expensive fencing of vineyards;</li> <li>• abandonment of vineyards and the unbridled overgrowth of farmland;</li> <li>• lack of additional tourist facilities in the area (accommodation, <i>osmice</i>, wineries, moderately priced inns for casual visitors – cyclists, hikers and locals);</li> </ul>

<ul style="list-style-type: none"> <li>• abundance of small, specialized producers or wineries, diversity of wine supply, links to the wine route;</li> <li>• the vineyards and orchards on the terraces reflect a strong harmony between the natural conditions and the type of land use; they have a spatial structural value and are an elaborate, distinctive landscape pattern; the vineyards in the terraces form a typical coastal cultural landscape;</li> <li>• the link between viticulture and tourism, events: open vineyard cottages, the Pinela festival, etc.;</li> <li>• rich cultural and natural heritage: churches, the statue of the Baron Čehovin, village architecture, etc.;</li> <li>• a large proportion of the NATURA 2000 sites;</li> <li>• opportunities for the development of complementary activities on farms</li> </ul>	<ul style="list-style-type: none"> <li>• poor connectivity between wine-growers, farmers;</li> <li>• poor transport links between settlements;</li> <li>• overgrowth of formerly existing paths;</li> <li>• fragmentation and unfavourable land policy – uncultivated agricultural land, lengthy and sometimes unsuccessful obtaining of appropriate building permits for wine-growing and wine-making facilities;</li> <li>• out-migration of young people and employment outside the region and outside agriculture;</li> <li>• land acquisition by foreigners threatens the livelihoods of local people</li> </ul>
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## OBJECTIVES OF THE LOCAL ACTION PLAN FOR THE CONSERVATION OF CULTURAL LANDSCAPES AND HABITATS

We identified three objectives (O) for the conservation and enhancement of the cultural landscape and habitats of the Vipava Hills.

### Objective I Preventing the overgrowth of cultural landscape

The landscape analysis of land use for the period 2002-2020 shows that the vineyard landscape of the Vipava Hills is becoming overgrown. New vineyards are being established in some places, but they are being established on lower altitude agricultural land (mainly meadows and arable land), while vineyards on higher altitude and sloping land are becoming overgrown. This trend is unfavourable in several respects:

- it leads to the loss of quality agricultural land for cereal and vegetable production, while at the same time it leads to overgrowth and thus loss of land for agriculture, on which it is difficult or even impossible to grow crops other than vines and perhaps fruit and olive trees;
- lower altitudes areas make it easier and cheaper to grow grapes, but they are also more vulnerable to disease (higher humidity, higher probability of frosts and lower insolation), which is why they tend to be more intensively cultivated.

Such land-use (landscape) change has the effect of reducing provisioning ecosystem services and increasing some regulating ecosystem services, which may be desirable from a nature conservation perspective. But overgrowth is not always positive either, as biodiversity is usually lost in the process. It is therefore essential to take measures to prevent overgrowth.

### Objective II Linking viticulture and tourism

The vineyard landscape of the Vipava Hills is attractive to visitors due to its high degree of naturalness, mosaic structure, and views from peaks with cultural heritage, and offers good opportunities for recreation (e.g. cycling, electric and pedal bikes, hiking). Winemakers, caterers and accommodation providers could make

better use of this advantage and improve the current tourist offer. To achieve this, they need to know their landscape and the opportunities it offers better.

### Objective III Improved visibility of Natura 2000 and nature in the area

Almost half (46.1%) of the Vipava Hills are protected as a Natura 2000 site, which brings certain management constraints, but also advantages, not least because it shows the high degree of naturalness of the area. The discussions with stakeholders proved that the Natura 2000 of the Vipava Hills is poorly known. Many wine-growers do not even know whether their vineyards are part of the Natura 2000 area or not. The ECOVINEGOALS project has produced maps of vineyards and the Natura 2000 site and organised a lecture on the Natura 2000 site in the Vipava Hills, but more such events are needed to raise awareness of Natura 2000. The stakeholders (mainly landowners) would like to see more discussions on finding synergies with the management of the Natura 2000 site. Particularly pressing is the establishment of new vineyards on overgrown land, which is also protected under Natura 2000, as overgrowth generally reduces biodiversity. In addition to the increasing of the visibility of Natura 2000 to local people and other stakeholders, it would make sense to include Natura 2000 as a nature conservation brand in the marketing programme. It should be pointed out that not every wine comes from an area as natural as the Vipava Hills.

## SHORT-TERM STEPS (1–2 YEARS)

### 5.1 List of activities

5.1.1 Up-to-date overview of the state of overgrowth of vineyard land, list of those interested in renting vineyard land, and monitoring of the situation
5.1.2 Preparation of a brochure on the wine-growing area of the Vipava Hills
5.1.3 Short lectures and talks several times a year on specific cases of the Natura 2000 in the Vipava Hills

### 5.2 Activity description

Name of activity	5.1.1 Up-to-date overview of the state of overgrowth of vineyard land, list of those interested in renting vineyard land, and monitoring of the situation
Timeframe	autumn 2022 – autumn 2023
Activity description	Preparation of GIS data on vineyards that were under overgrowth in 2020 and vineyards from 2002 that were no longer there in 2020 (map of overgrowth). Identified land to be verified on the field and its use to be recorded in 2022. The owners are added to the register and informed of the situation and the measure to be taken (agricultural cultivation, renting out, proposal for a higher tax in the event of overgrowth). In parallel, the municipality keeps a list of wine-growers who are looking for and wish to rent vineyards or land suitable for vineyard cultivation.
Responsible person/institution	<ul style="list-style-type: none"> <li>municipalities where land is being overgrown (Vipava, Ajdovščina, Komen and Nova Gorica)</li> <li>Inspectorate for Agriculture, Forestry, Hunting and Fisheries</li> </ul>
Objectives	Objective I: Prevention of overgrowth of cultural landscapes
Expected results	<ul style="list-style-type: none"> <li>reducing the proportion of vineyard land that is being overgrown</li> <li>conservation of wine-growing cultural landscape</li> </ul>
Indicators	<ul style="list-style-type: none"> <li>share of vineyard land being overgrown</li> <li>share of new vineyards on former vineyard land</li> </ul>

Key stakeholders / partners	<ul style="list-style-type: none"> <li>• Anton Melik Geographical Institute of Research Centre of the Slovenian Academy of Sciences and Arts</li> <li>• municipalities where land is being overgrown (Vipava, Ajdovščina, Komen and Nova Gorica)</li> <li>• wine-growers interested in the renting/purchasing of vineyard land</li> </ul>
Connectivity with other activities	<ul style="list-style-type: none"> <li>• 5.1.2 brochure on the wine-growing region of the Vipava Hills</li> <li>• 7.1.2 establishing of new vineyards on formerly abandoned vineyard land</li> </ul>
Potential resources	<ul style="list-style-type: none"> <li>• ECOVINEGOALS project for the preparation of the GIS data and map of overgrown areas</li> <li>• municipal funding for a field visit to identified land and communication with owners of vineyard land being overgrown and potential tenants</li> </ul>
Potential transfer of good practice	/
Feasibility (risks and obstacles)	The biggest risk for the implementation of this action is the ability to secure the resources, and the involvement of the relevant institutions to carry out the field visit and to communicate with the owners of the vineyard land being overgrown and potential tenants.

Name of activity	5.1.2 Preparation of a brochure on the wine-growing area of the Vipava Hills
Timeframe	autumn 2022
Activity description	Selection of cartographic and pictorial material from the Vipava Hills, preparation of the text and formatting into a appealing publication. Printing in autumn 2022.
Responsible person / institution	<ul style="list-style-type: none"> <li>• Anton Melik Geographical Institute of Research Centre of the Slovenian Academy of Sciences and Arts (text, cartography, design, printing)</li> </ul>
Objectives	Objective II Linking viticulture and tourism
Expected results	<ul style="list-style-type: none"> <li>• a publication in Slovenian and at least also in English to help raise awareness of the importance of the wine-growing region among locals and visitors from home and abroad</li> </ul>
Indicators	<ul style="list-style-type: none"> <li>• 400 copies of the publication in Slovenian</li> <li>• 200 copies of the publication in English</li> </ul>
Key stakeholders / partners	<ul style="list-style-type: none"> <li>• Anton Melik Geographical Institute of Research Centre of the Slovenian Academy of Sciences and Arts</li> </ul>
Connectivity with other activities	/
Potential resources	<ul style="list-style-type: none"> <li>• ECOVINEGOALS project</li> </ul>
Potential transfer of good practice	/
Feasibility (risks and obstacles)	Cartographic data and materials have been prepared and a landscape analysis has been carried out. The brochure will be printed in August

	2022.
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Name of activity	5.1.3 Short lectures and talks several times a year on specific cases of the Natura 2000 in the Vipava Hills
Timeframe	autumn 2022 – summer 2024
Activity description	<p>Short events with a presentation of Natura 2000 in the Vipava Hills, where the locals would learn more about Natura 2000, the status (conservation) of habitat types and species in the Vipava Hills, good practices in the field of conservation of Natura 2000 and viticulture, and the challenges they are facing. Is the conservation of Natura 2000/habitat types in the Vipava Hills favourable, unfavourable, poor or unknown? What is the relationship between Natura 2000 and viticultural practices, where is the situation favourable, where are the problems, etc.? For these reasons, the activity must be carried out in cooperation with agricultural advisors, who know and present the agricultural and environmental aspects, and with nature conservationists (Institute of the Republic of Slovenia for Nature Conservation (IRSNC)), who are competent in issues of nature conservation and Natura 2000.</p> <p>An additional purpose of such awareness-raising is closely linked to the prevention of overgrowing. It is anticipated that better knowledge of Natura 2000 will have an impact on the maintenance of agricultural practices in these areas and will prevent the overgrowing of Natura 2000 land.</p>
Responsible person / institution	<ul style="list-style-type: none"> <li>• IRSNC Nova Gorica</li> <li>• municipalities with land in the Vipava Hills (Vipava, Ajdovščina, Komen and Nova Gorica)</li> </ul>
Objectives	Objective III Improved visibility of Natura 2000 and nature in the area
Expected results	<ul style="list-style-type: none"> <li>• better recognition of Natura 2000</li> <li>• knowledge of specific Natura 2000 sites in the Vipava Hills</li> <li>• identified challenges in Natura 2000 sites and constructive solutions for everyone involved</li> </ul>
Indicators	<ul style="list-style-type: none"> <li>• at least 3 events per year for at least two consecutive years (2022–2024)</li> </ul>
Key stakeholders / partners	<ul style="list-style-type: none"> <li>• IRSNC Nova Gorica</li> <li>• municipalities with land in the Vipava Hills (Vipava, Ajdovščina, Komen and Nova Gorica)</li> <li>• land owners</li> <li>• Institute of Agriculture and Forestry Nova Gorica</li> </ul>
Connectivity with other activities	5.1.1 An up-to-date overview of the state of overgrowth of vineyard land, a list of those interested in renting and monitoring of the situation
Potential resources	The first event in autumn 2022 could be funded by the ECOVINEGOALS project. For the following events, funding could perhaps be provided by IRSNC (promotion of Natura 2000) and municipalities with land in the Vipava Hills.
Potential transfer of good practice	/
Feasibility (risks and	Coordination of dates for events by the IRSNC and the participating

obstacles)	municipalities. Ensuring that local people attend and moderate the events.
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## MEDIUM-TERM STEPS (3–5 YEARS)

### 6.1 List of activities

6.1.1 Establishment of a specialised service to take over the sale of land from a number of heirs
6.1.2. Renovation of the wine road with natural and cultural heritage designation
6.1.3. Programme for the marketing of the Vipava Hills as a Natura 2000 site

### 6.2 Activity description

Name of activity	6.1.1 Establishment of a specialised service to take over the sale of land from a number of heirs
Timeframe	around 2025
Activity description	It has also become apparent that some vineyard land is becoming overgrown because it is owned by a large number of heirs who are unable to agree on a sale/lease or are abroad and no longer interested in their vineyard plots.
Responsible person / institution	<ul style="list-style-type: none"> <li>municipalities with land in the Vipava Hills (Vipava, Ajdovščina, Komen and Nova Gorica) or joint inter-municipal service</li> </ul>
Objectives	Objective I: Preventing the overgrowth of cultural landscapes
Expected results	<ul style="list-style-type: none"> <li>reducing the proportion of vineyard land being overgrown,</li> <li>preserved vineyard cultural landscape</li> </ul>
Incators	<ul style="list-style-type: none"> <li>area of vineyard land being overgrown rented out or sold to wine-growers</li> <li>share of vineyard land being overgrown</li> <li>share of new vineyards on former vineyard land</li> </ul>
Key stakeholders / partners	<ul style="list-style-type: none"> <li>municipalities with land being overgrown (Vipava, Ajdovščina, Komen and Nova Gorica)</li> <li>land owners</li> <li>Anton Melik Geographical Institute of Research Centre of the Slovenian Academy of Sciences and Arts</li> </ul>
Connectivity with other activities	5.1.1 Up-to-date overview of the state of overgrowth of vineyard land, list of those interested in renting it and monitoring the situation 7.1.2 Establishment of new vineyards on former abandoned vineyards
Potential resources	The municipalities where vineyard land is overgrown (Vipava, Ajdovščina, Komen and Nova Gorica) should provide the resources to set up such a service.
Potential transfer of good practice	/
Feasibility (risks and obstacles)	Lack of interest on the part of municipalities to set up such a service.

Name of activity	6.1.2 Renovation of the wine road with natural and cultural heritage designation
Timeframe	2023–2025
Activity description	The current wine road is outdated and in need of renovation. It needs to be renewed, the map needs to be updated, partnerships and effective agreements need to be reached with the owners on the timetable when wine cellars are open (to be spread over the days and the area of the Vipava Hills). Owners need to be provided with quality and specific material about the Vipava Hills.
Responsible person / institution	<ul style="list-style-type: none"> <li>• Regional Development Agency ROD Ajdovščina</li> <li>• Regional Development Agency of Northern Primorska ltd.</li> <li>• Tourist Board of Nova Gorica and Vipavska Valley</li> </ul>
Objectives	Objective II Linking viticulture and tourism
Expected results	<ul style="list-style-type: none"> <li>• renovated wine road with valid geographical designations</li> <li>• updated wine route map</li> <li>• open wine cellars as indicated on the wine road map (previously coordinated with the owners)</li> <li>• up-to-date website</li> </ul>
Indicators	<ul style="list-style-type: none"> <li>• valid designations along the renovated wine road</li> <li>• updated map printed</li> <li>• at least 3 wine cellars open every day in the Vipava Hills</li> </ul>
Key stakeholders / partners	<ul style="list-style-type: none"> <li>• Regional Development Agency ROD Ajdovščina and Regional Development Agency of Northern Primorska ltd. Nova Gorica</li> <li>• Institute of Agriculture and Forestry Nova Gorica</li> <li>• Municipalities of Vipava, Ajdovščina, Komen and Nova Gorica</li> <li>• owners of wine cellars</li> <li>• cartographer</li> </ul>
Connectivity with other activities	5.1.2 Preparation of a brochure on the wine-growing area of the Vipava Hills
Potential resources	Municipal funds and the acquisition of a project for the renovation of the wine road.
Potential transfer of good practice	/
Feasibility (risks and obstacles)	The Regional Development Agency ROD Ajdovščina has already prepared for the activity, no major obstacles envisaged.

Name of activity	6.1.3 Programme for the marketing of the Vipava Hills as a Natura 2000 site
Timeframe	2022–2025
Activity description	The high proportion of the area protected by Natura 2000 gives the Vipava Hills an important character. It should be seen as an asset rather than a constraint and highlighted at every turn. To this end, a programme should be drawn up in the medium term to integrate Natura 2000 into the marketing programme, from wine sales to destination marketing for the Vipava Hills.
Responsible person / institution	<ul style="list-style-type: none"> <li>• municipalities with land in the Vipava Hills (Vipava, Ajdovščina, Komen and Nova Gorica)</li> <li>• IRSNC Nova Gorica</li> </ul>

Objectives	Objective III Improved visibility of Natura 2000 and nature in the area
Expected results	<ul style="list-style-type: none"> <li>• higher price value of wines and other products produced in the Vipava Hills region</li> <li>• higher price for overnight stays in the Vipava Hills area</li> <li>• knowledge of specific Natura 2000 sites (especially typical habitats) in the Vipava Hills and their boutique integration in the promotion of the area</li> </ul>
Indicators	<ul style="list-style-type: none"> <li>• price of all agricultural products, including wine</li> <li>• price of an overnight stay</li> <li>• visits by day guests</li> <li>• number of overnight stays</li> </ul>
Key stakeholders / partners	<ul style="list-style-type: none"> <li>• IRSNC Nova Gorica</li> <li>• municipalities with land in the Vipava Hills (Vipava, Ajdovščina, Komen and Nova Gorica)</li> <li>• owners of wine cellars and tourist accommodation facilities</li> <li>• Regional Development Agency ROD Ajdovščina and Regional Development Agency of Northern Primorska Ltd. Nova Gorica</li> <li>• Institute of Agriculture and Forestry Nova Gorica</li> </ul>
Connectivity with other activities	<p>5.1.3 Short lectures and talks several times a year on specific Natura 2000 cases in the Vipava Hills</p> <p>5.1.2 Preparation of a brochure on the wine-growing area of the Vipava Hills</p> <p>6.1.2 Renovation of the wine road with natural and cultural heritage designations</p>
Potential resources	Municipal budget and possible projects of development agencies in the area.
Potential transfer of good practice	/
Feasibility (risks and obstacles)	Lack of interest from landowners and municipalities. Another risk may be the fear of over-promotion of Natura 2000 by IRSNC. It will probably be necessary to consider which sites should be revealed and which should be left hidden.

## LONG-TERM STEPS (6–10 YEARS)

### 7.1 List of activities

7.1.1 The establishing of new vineyards on former abandoned vineyards
7.1.2 The establishing of direct agricultural payments for the cultivation on terraces
7.1.3 Payments for ecosystem services for the cultivation of vineyards at higher altitudes and in Natura 2000 sites

### 7.2 Activity description

Name of activity	7.1.1 The establishing of new vineyards on former abandoned vineyards
Timeframe	by 2032
Activity description	The establishing of new vineyards on the land of abandoned vineyards and vineyard land being overgrown or under forests.

Responsible person / institution	<ul style="list-style-type: none"> <li>owners of abandoned vineyards and vineyard land being overgrown or under forests,</li> <li>wine-growers wishing to buy/lease abandoned vineyards and vineyard land being overgrown or under forests.</li> </ul>
Objectives	Objective I: Preventing the overgrowth of cultural landscapes
Expected results	<ul style="list-style-type: none"> <li>increased share of new vineyards on former vineyard land being overgrown or under forests,</li> <li>cultural landscape of vineyards preserved</li> </ul>
Indicators	<ul style="list-style-type: none"> <li>share of new vineyards on former vineyard land</li> </ul>
Key stakeholders / partners	<ul style="list-style-type: none"> <li>wine-growers who own abandoned vineyards and vineyard land being overgrown or under forests</li> <li>wine-growers wishing to buy/rent abandoned vineyards and vineyard land being overgrown or under forests, and convert them into new vineyards</li> <li>Institute of Agriculture and Forestry Nova Gorica (help with the planning of new vineyards )</li> </ul>
Connectivity with other activities	5.1.1 Up-to-date overview of the state of overgrowth of vineyard land, list of those interested in renting vineyard land, and monitoring of the situation
Potential resources	Own financial resources of interested wine-growers. Financial incentives should be sought in the field of agricultural conservation or the conservation of cultural landscapes.
Potential transfer of good practice	/
Feasibility (risks and obstacles)	Failure to implement or inadequate implementation of the MSP, which will allow wine-growers to establish new vineyards on former vineyard land that is being overgrown or under forests.

Name of activity	7.1.2 The establishing of direct agricultural payments for the cultivation on terraces
Timeframe	by 2028
Activity description	Similar to the existing agricultural payments for areas with less-favoured areas, payments for the cultivation of vineyards on terraces should also be introduced. The cultivation of vineyards on terraces is a significantly greater financial burden than the cultivation of vineyards on the flatlands. On the other hand, it is precisely this type of terraced and sloping farmland that is best suited to vineyards (and orchards and olive groves), as it is at a higher altitude and is significantly more difficult, if not impossible, to grow vegetables. The flat land (lower altitude) in the valley bottom should be left for arable land.
Responsible person / institution	<ul style="list-style-type: none"> <li>Ministry of Agriculture, Forestry and Food</li> </ul>
Objectives	Objective I: Preventing the overgrowth of cultural landscapes
Expected results	<ul style="list-style-type: none"> <li>the share of overgrown terraces reduced</li> <li>vineyard landscape preserved</li> <li>prevention of erosion</li> <li>preservation of ecosystems</li> </ul>
Indicators	<ul style="list-style-type: none"> <li>share of overgrown terraces</li> </ul>

Key stakeholders / partners	<ul style="list-style-type: none"> <li>• Ministrstry of Agriculture, Forestry and Food</li> <li>• Institute of Agriculture and Forestry Nova Gorica</li> <li>• wine-growers</li> </ul>
Connectivity with other activities	/
Potential resources	Agricultural policy funding
Potential transfer of good practice	/
Feasibility (risks and obstacles)	Lack of interest from the Ministry of Agriculture, Forestry and Food.

Name of activity	7.1.3 Payments for ecosystem services for the cultivation of vineyards at higher altitudes and in Natura 2000 sites
Timeframe	by 2028
Activity description	<p>Higher, windswept and sunny sloping positions are more favourable for the ripening of the grapes and for organic vineyard cultivation. Lower altitude areas are easily accessible to machinery, which makes them much easier to cultivate, but they require a higher input of fertilisers and plant protection products because of the higher humidity and the consequent risk of disease, pests and frost. On the other hand, these areas are lost to cereal and vegetables cultivation.</p> <p>We propose that subsidies be allocated to areas protected by Natura 2000 and to the preservation of traditional vineyard landscapes or areas with higher altitudes and slopes (between 100 and 350 m above sea level). These require terracing or the preservation and maintenance of terraces, more manual labour, and are more difficult to access with machinery, but are therefore more sustainable and have fewer harmful effects on the environment. It is only there that the distinctive bedrock comes to the fore, producing wines that are found nowhere else. Part of the budget can be used to fund education on organic farming and to increase the networking of actors within the region.</p>
Responsible person / institution	<ul style="list-style-type: none"> <li>• Ministrstry of Agriculture, Forestry and Food</li> </ul>
Objectives	<p>Objective III Improved visibility of Natura 2000 and nature in the area</p> <p>Objective I: Preventing the overgrowth of the cultural landscape</p>
Expected results	<ul style="list-style-type: none"> <li>• better preserved sites and a larger number of Natura 2000 sites preserved, contributing balancing ecosystem services</li> <li>• lower share of vineyards that are overgrown</li> <li>• preserved vineyard landscape</li> </ul>
Indicators	<ul style="list-style-type: none"> <li>• conservation status of Natura 2000 sites</li> <li>• proportion of vineyards that are overgrown</li> </ul>
Key stakeholders / partners	<ul style="list-style-type: none"> <li>• Ministry of Agriculture, Forestry and Food</li> <li>• IRSNC Nova Gorica</li> <li>• Institute of Agriculture and Forestry Nova Gorica</li> <li>• wine-growers</li> </ul>

Connectivity with other activities	/
Potential resources	Second pillar agricultural policy funding
Potential transfer of good practices	/
Feasibility (risks and obstacles)	Lack of interest from the Ministry of Agriculture, Forestry and Food.

## CONCLUSION

We have listed 9 short-, medium- and long-term actions that are to contribute to the conservation of the vineyard cultural landscape and Natura 2000 sites in the Vipava Hills over the next 10 years. Most efforts and activities will have to be focused on the prevention of overgrowth, as the share of vineyards is decreasing, despite new ones being planted. Although we have not specifically designed activities to deal with wildlife issues, we emphasize the need to start managing the increased wildlife population effectively. The vineyard landscape of the Vipava Hills has a high degree of naturalness and provides habitats for various animal species, including game, which often cause damage to the vineyards. This is closely linked to overgrowth. Overgrowth increases the number of wild animals, and the damage caused by wild animals leads to the abandonment of vineyards in the vicinity of overgrown land, which further increases the trend towards overgrowth. Finding this delicate balance will require the cooperation of various stakeholders. Among them, hunting ground managers, foresters and the Ministry of Agriculture, Forestry and Food will have to play a key role.

A significant proportion of activities will also need to be devoted to the raising of awareness and recognising the value of the Natura 2000 sites. Through a series of public debates and presentations, protected areas need to be recognised and treated as an asset rather than a hindrance. In conclusion, the mosaic vineyard landscape with its high degree of naturalness is attractive to visitors, and part of the activities will therefore also focus on the linking and closer intertwining of viticulture and tourism.



# Ecological Vineyards Governance Activities for Landscape's Strategies

Deliverable T2.3.1

## LOCAL ACTION PLAN FOR CONSERVATION OF LANDSCAPE AND HABITAT IN VITICULTURE AREA AND FOR VALORISATION OF ECOSYSTEM SERVICES

Responsible Partner

**INFORMO**

**15/11/2022** (Final)



LEAD PARTNER



agencija za ruralni razvoj istre



## **BASIC PROJECT INFORMATION:**

PROGRAMME CALL: INTERREG V-B Adriatic-Ionian ADRION

Project Acronym ECOVINEGOALS

Project Number: 866

Programme Priority Axis: 2

Start – End Date: 01.03.2020 – 31.08.2022

Total budget: EUR 1 939 505.59

ERDF: 1 399 759.25 IPA: 248 820.5

**Lead Partner Organisation: LAG Eastern Venice, Italy**

Url: [www.ecovinegoals.interregadrion.eu](http://www.ecovinegoals.interregadrion.eu)

## **DOCUMENT INFORMATION**

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<b>Dissemination Level</b>	PP

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November, 2022

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## Project Summary

ECOVINEGOALS promotes sustainability and resilience in the winemaking industry by encouraging the transition of intensive viticulture towards agro ecological management systems that protect natural habitats and landscapes, while reducing chemical and fossil fuel inputs and harmful emissions. The project aims to enhance stakeholders' skills in participatory local governance, to strengthen transnational cooperation and provide specific transnational instruments to promote support and manage the agro ecological transition.

### Expected results

- Sharing between partners in the ADRION countries of fundamental concepts and practices necessary for the transition from intensive viticulture management systems, towards agro ecological management methods.
- Improvement of the participatory local governance skills of decision makers and all other viticulture stakeholders, both public and private, to jointly develop and define strategies and plans aiming to protect natural habitats and rural landscapes.
- Transnational communication, cooperation, and exchange between regional authorities and civil society organizations concerning common objectives to protect vulnerable environments, to promote ecosystem services, to prevent or mitigate climate change, and to avoid social conflicts in land use.
- An increase in the number and quality of tools and strategies available to support the planning and management of the agro ecological transition of viticulture systems in the region.

### Partnership:

<b>PP1- LP</b>	<b>LAG EASTERN VENICE, VEGAL (IT)</b>
PP2	Autonomous Province of Trento, PAT (IT)
PP3	Chamber of Agriculture and Forestry of Slovenia, KGZS - Zavod GO (SI)
PP4	Research Centre of the Slovenian Academy of Sciences and Arts, ZRC SAZU (SI)
PP5	Agency for Rural Development of Istria Ltd Pazin, AZRRI (HR)
PP6	Association for the promotion of employment, vocational training and education, INFORMO (HR)
PP7	Business Development Center Kragujevac, BDCKG (RS)
PP8	Foundation Business Start-up Center Bar, BSC BAR (ME)
PP9	Municipality of Bar, BAR (ME)
PP10	Mediterranean Agronomic Institute of Chania, CIHEAM MAICh (EL)

**Associated Partners (APs):**

General Union CISL Cultivators Venice (IT)
Bio district of production and biological community of central-eastern Venice - BIO VENICE (IT)
IAL - Innovation Learning Work S.r.l. - Social enterprise (IT)
AIAB-Italian Organic Agriculture Association (IT)
Agroecologiki SP (EL)
Municipality of Topola (RS)
Šumadija winemakers association (RS)
Ministry of Agriculture and Rural Development (HR)
Agroecology Europe (BL)

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## 1. BASIC BACKGROUND OF THE PILOT AREA

Pilot area includes three local self-governance of south-west part of Istria peninsula: Town of Vodnjan - Dignano, Municipality of Bale and Municipality of Fažana. Total pilot area amounts to approximately 200 km<sup>2</sup> of Istria peninsula (105 km<sup>2</sup> Town of Vodnjan - Dignano, 81,9 km<sup>2</sup> of Municipality of Bale and 13 km<sup>2</sup> of Fažana municipality, overall 199,9 km<sup>2</sup>). Overall pilot area is mainly plain and valley area of north-west part of Istria peninsula, with the highest points that lays on 140-147 m above sea level. Both Town of Vodnjan - Dignano and Bale Municipality have access to seaside on the west sides of area, while Municipality of Fažana is situated exactly on the coast across Islands of Brijuni.



Picture 1 Humorous inscription from 1448, embedded to Benussi Family palace in Vodnjan: *“Tali-me-domanda-come-sto-che-mai-co-teto-del-be-che-ho/Thank you for asking, I’m fine!”*<sup>1</sup>

Based on archeological findings, the area has been inhabited as early as bronze ages (2 millennium BC) recognized by organization of settlements around fortifications placed on the area highest points. During the Roman period, area has been known as *“ager publicus”*<sup>2</sup> or *Agera Colonia Julia Pola* where population has been engaged to intensive olive and grape

<sup>1</sup> <https://www.istria-culture.com/kuca-benussi-i97>

<sup>2</sup> Land owned by Roman State, mainly aquired by conquests, <https://www.enciklopedija.hr/natuknica.aspx?id=777>

cultivation that followed by further area and agriculture development. Roman villas groupings<sup>3</sup> that were built became centers of later intensive population settling and economic activities development. During the rule of Roman consul *Caia Lecanija Bassa* (around year 64 BC), area has been known for its amphorae production (Fažana<sup>4</sup> Municipality). The area continued to develop throughout history as significant tourism and agricultural area known especially for olive and wine growing. In the second half of the XVIth century, Vodnjan was given the flattering epithet “economically developed and most populated citadel in the whole of Istria (castello florido e popolatissimo di tutta l’Istria) and Venetian governor has moved from Pola to Vodnjan<sup>5</sup>.

Agriculture production, especially olive growing and olive oil production, in addition to grapevine is an integral part (in some parts the dominant part) of the natural and agricultural landscape, and more importantly, part of the culture of living and customs of the local population. The cultivation of vines in the Vodnjan-Fažana-Bale region could not even be maintained, let alone spread to such an extent that there were no very favorable natural conditions for it: orography, soil and climate. The vineyard positions (KO Vodnjan, KO Peroj, KO Galižana and KO Fažana) to which the Vin de Rosa wine production area is limited are located in the **C2 wine-growing production zone, and belong to the Western Istria vineyards**, an integral part of the Croatian Istria wine sub region; region Primorska Croatia.

The production area of "**Vodnjan dessert wine Vin de Rosa**" is located in the southwest part of the Istrian peninsula in pilot area (Vodnjan-Bale-Fažana region) that has all the geological and relief specifics that are characteristic of the so-called Poreč-Pula plateau, limestone plateau along the coast, covered with red soil after which this part of Istria is also called red Istria. Pilot region is characterized by a slightly undulating relief with larger lowland complexes and an altitude not exceeding 200 m. In the geographical area of Vin de Rosa wine production, redness on limestone and dolomite predominates, shallow to medium deep (15 - 30 cm). These redheads are mostly skeletoid to skeletal, poorly rich in organic matter and phosphorus. According to their physical properties, they belong to **clay soils, i.e. soils of heavier mechanical composition**. The climatic conditions in the region of *Vin de Rosa* production are very favorable for vines growing and characterized as **Mediterranean climate with a pronounced maritime influence** (average annual air temperature is 14.2 °C and rainfalls of 830 mm, with 55% of precipitations that falls within October-March period).

The size of the farms interviewed span from 5 to 31 ha, constituting an area of 19 ha on average. 80% of the farm area of the interviewed viticulture farms is covered in vineyards, where the Malvazija Istarska is the variety that most of surveyed viticulturists reported

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<sup>3</sup> Praedium Athenium, Vicus Attinianum/Adinianum, and in middle ages Diniano or Dignano today or Castrum Vallis in case of Bale Municipality from year 983 AD

<sup>4</sup> Lat. Vasanium - vase, pot

<sup>5</sup> <http://zupavodnjan.com/en/vodnjan-parish/history-of-the-parish>

growing in the largest share, and the Istrian varieties are Teran and Muskat including international varieties Merlot, Cabernet Sauvignon, Chardonnay and Pinot.

## 2. STRENGTHS AND WEAKNESS OF THE PILOT AREA

Following the conducted SWOT analysis for The Region of Istria, some specifics of the targeted pilot area of Vodnjan – Bale – Fažana region can be emphasized. The main strengths of local viticulture are defined in relation to land and climate conditions, but also to the local population. Identified **main strengths are as follows:**

- Fertile and unpolluted agricultural land with a climate suitable for agriculture and wine production;
- Traditional agriculture and especially wine-growing practices;
- Recognized local (pilot area) authenticable wine sort (ex. Vin de Rosa);
- High interest among local population for wine-growing activities;
- Available (although small and scattered) agricultural land for wine-growing activities;
- High quality of wine produced on pilot area;
- Experience in agricultural products production, branding and promotion (ex. the highest quality olive oil production area in Croatia);
- Agricultural service providers network well developed and operating on local level;
- Tradition in cooperative organization and operating on local level;
- Agriculture is recognized as regional and local strategic activity;
- Highly developed ecological awareness among local population;
- Big cultural, historical and archeological heritage of pilot area;
- Wine production and winegrowing is recognized on County level to be of strategic development importance – *Strategy for Wine production and Winegrowing for The Region of Istria till 2030*;
- Numerous cultural, eno-gastronomy and specific tourism events and manifestations;
- Highly developed tourism and interest for local agricultural products consumption, etc.

The pilot area is analyzed more specifically with the aim of starting agroecological practice. Seven producers in the area founded the Slow Food Presidium for Vin de Rosa<sup>6</sup> and established a disciplinary rulebook on agroecological practices of grape growing and wine production. Although the territory is small compared to the entire region, the uniqueness is in representing the direction of sustainable winemaking in the entire region, all started from the initiative of the small association ISTRIAN DE DIGNAN - Ecomuseum.

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<sup>6</sup> <https://www.fondazione Slow Food.com/en/slow-food-presidia/vin-de-rosa/>

This process is gathered from professional and amateur wine producers in the Slow food community. Also is a part of the international Slow wine movement and part of the international Slow wine coalition, and actively participated in a definition of Manifesto for good, clean and fair wine, started in Bologna in March 2022 and finalized in Terra Madre (Torino) in September 2022.

The producers of Vine de rosa were supervised in the whole process by international Slow food experts which are active on the local level, through the Slow food community Istria.





Picture 2 Etichetta narrante

Apart from the above mentioned wine-growing strengths, there are even more opportunities that can highly influence further development of wine-growing and viticulture on pilot area.

The **main opportunities are related to:**

- Rich cultural and historical tangible and intangible heritage to be connected to local wine growing producers or businesses;
- Agricultural services network developed (ex. Institute for Agriculture in Poreč);
- Slow food presidium Vin de rosa developed;
- Linking projects at the regional level that promote sustainability, bio-region and viticulture in line with agro-environmental practices;
- Certification of agro-food products and wine;
- Growing interest for rural area tourism destinations and off-season tourist offer;
- Incentives programs available on national, regional and EU level for wine growing and agriculture in general;
- Development of storytelling concept to enhance and improve connection among agriculture products producers and market niches and channels;
- Cooperation and networking among producers on local, regional, national and EU level, etc.

Based on the information from *Croatian Wine Registry*, The Region of Istria accounts for overall total of 2.865,77 ha of high quality vineyards and is on second place among other Croatian Counties wine growing area after Međimurje County in north-west part of the County. However, conducted SWOT analysis shows specific issues the area is dealing with in spite of high interest and tradition in wine growing and viticulture. The issues are even more evident in pilot area (Vodnjan – Bale – Fažana), as the existing 45,18 ha of vineyards represent only 1,6% of overall total The Region of Istria vineyards.

As identified, the **main weaknesses of viticulture in pilot area are related to:**

- Local indigenous wine Vin de Rosa is not valorized and promoted sufficiently;
- Scattered and fragmented land that is available for wine growing production;
- High initial investments for wine growing cultivation;
- Lack of mechanization and equipment for land preparation and wine growing;
- High number of smaller family agricultural business with mixed production and lack of strategic orientation to wine growing;
- Family winery marketing only on the local area and selling on the doorstep;
- Low level production mainly for own use;
- Insufficient tourism and service providers in the sustainable tourism offer segment;
- Low level of irrigation infrastructure for the vineyards;
- Vineyards more sensitive to climate and environmental changes than other agriculture cultures (ex. olive, crops);
- Climate changes and pollution increase risks for sustainability of vineyard growing and wine production;
- Insufficiently recognized possibilities of using agro-ecological practices in agriculture and viticulture, etc.

<b>Strengths (S)</b>	<b>Weaknesses (W)</b>
<ul style="list-style-type: none"> <li>• Fertile and unpolluted agricultural land with a climate suitable for agriculture and wine production;</li> <li>• Traditional agriculture and especially wine-growing practices;</li> <li>• Recognized local (pilot area) authenticable wine sort (ex. Vin de Rosa);</li> <li>• High interest among local population for wine-growing activities;</li> <li>• Available (although small and scattered) agricultural land for wine-growing activities;</li> <li>• High quality of wine produced on pilot area;</li> <li>• Experience in agricultural products production, branding and promotion (ex. the highest quality olive oil production area in Croatia);</li> <li>• Agricultural service providers network well developed and operating on local level;</li> <li>• Tradition in cooperative organization and operating on local level;</li> <li>• Agriculture is recognized as regional and local strategic activity;</li> <li>• Highly developed ecological awareness among local population;</li> <li>• Big cultural, historical and archeological heritage of pilot area;</li> </ul>	<ul style="list-style-type: none"> <li>• Local indigenous wine Vin de Rosa is not valorized and promoted sufficiently;</li> <li>• Scattered and fragmented land that is available for wine growing production;</li> <li>• High initial investments for wine growing cultivation;</li> <li>• Lack of mechanization and equipment for land preparation and wine growing;</li> <li>• High number of smaller family agricultural business with mixed production and lack of strategic orientation to wine growing;</li> <li>• Family winery marketing only on the local area and selling on the doorstep;</li> <li>• Low level production mainly for own use;</li> <li>• Insufficient tourism and service providers in the sustainable tourism offer segment;</li> <li>• Low level of irrigation infrastructure for the vineyards;</li> <li>• Vineyards more sensitive to climate and environmental changes than other agriculture cultures (ex. olive, crops);</li> <li>• Climate changes and pollution increase risks for sustainability of vineyard growing and wine production;</li> <li>• Insufficiently recognized possibilities of using agro-ecological practices in agriculture and viticulture, etc.</li> </ul>

<ul style="list-style-type: none"> <li>Wine production and winegrowing is recognized on County level to be of strategic development importance – Strategy for Wine production and Winegrowing for The Region of Istria till 2030;</li> <li>Numerous cultural, eno-gastronomy and specific tourism events and manifestations;</li> <li>Highly developed tourism and interest for local agricultural products consumption, etc.</li> </ul>	
Opportunities (O)	Threats (T)
<ul style="list-style-type: none"> <li>Great potential of intangible heritage;</li> <li>Great investment potential in the revitalization of cultural heritage;</li> <li>Rich cultural and historical tangible and intangible heritage to be connected to local wine growing producers or businesses;</li> <li>Agricultural services network developed (ex. Institute for Agriculture in Poreč);</li> <li>Slow food presidium Vin de rosa developed;</li> <li>Linking projects at the regional level that promote sustainability, bio-region and viticulture in line with agro-environmental practices;</li> <li>Certification of agro-food products and wine;</li> <li>Growing interest for rural area tourism destinations and off-season tourist offer;</li> <li>Incentives programs available on national, regional and EU level for wine growing and agriculture in general;</li> <li>Development of storytelling concept to enhance and improve connection among agriculture products producers and market niches and channels;</li> <li>Cooperation and networking among producers on local, regional, national and EU level, etc.</li> <li><b>Increasing competitiveness through incentives and subsidies in agriculture and viticulture;</b></li> <li><b>Linking projects at the regional level that promote sustainability, bio-region and viticulture in line with agro-environmental practices;</b></li> <li><b>Certification of agro-food products and wine;</b></li> <li><b>Organic agriculture and viticulture;</b></li> <li><b>Future potential in resistant varieties of grapes;</b></li> <li><b>Development of cooperatives and encouraging small producers to work together;</b></li> <li><b>Increase of hectares under vineyards;</b></li> <li><b>Encouraging and promoting cultural heritage, local specifics and autochthony;</b></li> <li><b>Opportunities to use EU funds to invest in improving the business of winemakers and the functioning of wine farms;</b></li> </ul>	<ul style="list-style-type: none"> <li><b>Legislation of the Republic of Croatia related to land use;</b></li> <li><b>Insufficient and slow investment in infrastructure reconstruction;</b></li> <li><b>Excessive concreting and destruction of cities and suburbs' natural areas;</b></li> <li><b>Infrastructure congestion during the season;</b></li> <li><b>Inadequate destination management;</b></li> <li><b>Devastation of natural and cultural resources in order to satisfy current tourist demand;</b></li> <li><b>Destruction of the cultural identity of the destination;</b></li> <li><b>Unexpected situations in the world like the coronavirus;</b></li> <li><b>Climate change - an increasing drought period;</b></li> <li><b>Resource management in an inefficient way;</b></li> <li><b>The problem of specialized and educated workforce in the agriculture, wine and tourism sectors;</b></li> <li><b>Seasonal and mass tourism in a coastal area;</b></li> <li><b>Insufficient development according to principles of sustainable development;</b></li> </ul>

**Figure 1**Conducted SWOT analysis of the pilot area

### 3. OBJECTIVES OF THE LOCAL ACTION PLAN FOR CONSERVATION LANDSCAPE AND HABITAT

Following conducted focus group discussions with stakeholders, three main objectives have been formulated:

1. Creation of long-term policies and conditions on local and regional level for improving the sustainability and productivity of the Istrian wine sector;
2. Raising awareness and knowledge on the landscape preservation, including protection of the biodiversity and specific local products with added value;
3. Territory branding and specific touristic offer development that is in symbiosis with local tradition and customs, agro-ecological practices and biodiversity protection.

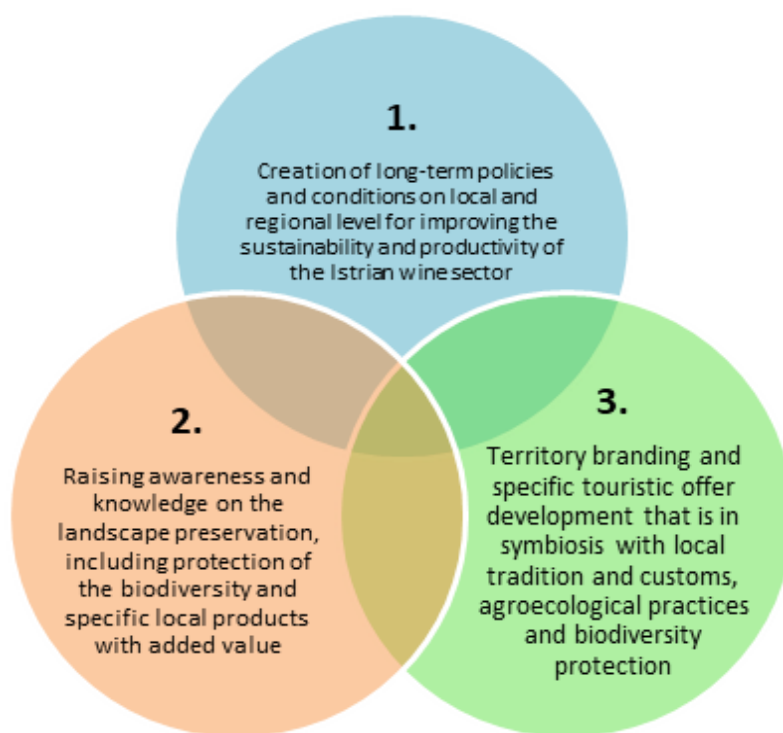


Figure 2 Main objectives of the local action plan

Based on the developed objectives it is evident that on regional and especially local, pilot area level strong awareness of need for development of long – term policies to foster agricultural production and further development of sustainability and productivity of Istrian wine sectors, exists. This includes concrete measures that will boost wine production development but also measures for better control of land use, especially related to devastation of agricultural land and/or protected area in relation to uncontrollable housing, illegal construction or agricultural land abandoning and deprivation. This also includes measures to connect existing cultural,

historical and archeological tangible and intangible heritage to existing or new agricultural products to assure additional added value to their consumers, to further strengthen development of areas that are not situated directly on the coast thus developing preconditions for off-season tourism development. This in turn will also assure increased sustainability of the local area and agricultural producers.

Defined objectives and related activities promotes synergies between local decision makers and policies, increase in locally available educational programs related to environment protection, sustainable agricultural production and improved use of existing and developed resources and agricultural products with emphasis on viticulture for branding local communities based on its preserved natural and cultural heritage.

OBJECTIVE	ACTIVITY	TIME FRAME
<b>1. Creation of long-term policies and conditions on local and regional level for improving the sustainability and productivity of the Istrian wine sector</b>	1.1. Harmonization and implementation of concrete measures and control mechanisms in territory development on local and regional level	Short term
	1.2. Valorization, protection and encouragement through support measures of upgraded local products and touristic offers in The Region of Istria	Long term
	1.3. Identification and backing of improved touristic offer	Mid term
<b>2. Raising awareness and knowledge on the landscape preservation, including protection of the biodiversity and specific local products with added value</b>	2.1. Educational programs development on biodiversity and landscape protection	Short term
	2.2. Developing awareness raising communication materials and control mechanisms of land abandoning prevention and illegal construction building	Mid term
	2.3. Raising awareness and knowledge of wine makers and viticulturists about agroecological practices	Short term
<b>3. Territory branding and specific touristic offer development that is in symbiosis with local tradition and customs, agroecological</b>	3.1. Mapping, promotion, protection and encouragement through support measures of pilot areas in The Region of Istria	Short term
	3.2. Agroecology oriented winemakers network development	Short term

practices and biodiversity protection	3.3. Development of territory branding and specific touristic offers	Mid term
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Figure 3 Action plan objectives, activities and time frame

### **3.1. SHORT TERM STEPS FOR CONSERVATION OF LANDSCAPE AND HABITAT IN VITICULTURE AREA AND FOR VALORIZATION OF ECOSYSTEM SERVICES**

Short term steps encompass the most important actions for achieving the agroecological transition of viticulture in the Vodnjan-Fažana-Bale area, replicable to the Region of Istria, in a period of 2 to 3 years.

#### **3.1.1. List of activities**

1.1. Harmonization and implementation of concrete measures and control mechanisms in territory development on local and regional level

2.1. Educational programs development on biodiversity and landscape protection

2.3. Raising awareness and knowledge of wine makers and viticulturists about agroecological practices

3.1. Mapping, promotion, protection and encouragement through support measures of pilot areas in The Region of Istria

3.2. Agroecology oriented winemakers' network development

#### **3.1.2. Description of each activities**

<b>Name</b>	<b>1.1. Harmonization and implementation of concrete measures and control mechanisms in territory development on local and regional level</b>
<b>Time frame</b>	1-2 years
<b>Short activity description</b>	The Region of Istria is one of the best known of its touristic offer and tourism development. Apart for the positive effects this have on quality of life of population and regions economic development, negative effects include land and resources deprivation, especially related to agricultural land due to uncontrollable construction activities. Additionally, population concentration on the area especially during summer period increases risks of pollution and

	waste management issues that also have negative long-term effects on entire ecosystem of the region.
<b>Responsible person/institution</b>	Local and regional self-governances (Town of Vodnjan-Dignano, Municipality of Bale, Municipality Fažan, County of Istria) Agriculture Service providers (ex. Ministry of Agriculture – Department for Professional Support to Agriculture Development)
<b>Objectives</b>	1. Creation of long-term policies and conditions on local and regional level for improving the sustainability and productivity of the Istrian wine sector
<b>Expected results</b>	<ul style="list-style-type: none"> <li>- Detailed analysis on land use conducted on local and regional level related to construction activities (ex. area of agricultural land and landscape that are deprived or in risk of deprivation by illegal construction activities);</li> <li>- Mapped and identified landscapes and areas of special interest on local and regional level;</li> <li>- Issued Program for preservation of mapped areas and landscapes on local and regional level defining implementation timeline and implementation monitoring activities and responsibilities on regular basis;</li> <li>- Local population and NGOs representatives included to monitoring activities of Program implementation;</li> <li>- Local and regional development strategies planned and/or adjusted to EU Biodiversity strategy 2030 and Nature Restoration Law;</li> <li>- Increased awareness of population especially during summer time on need and activities for landscape preservation, ex. promotional materials informing on mapped landscapes and/or preserved spatial area, landscapes and land appropriately marked, information on regulatory measures for not applying to issue local or regional regulations.</li> </ul>
<b>Indicators</b>	<ul style="list-style-type: none"> <li>- Increased area of landscape and agriculture land protected and preserved;</li> <li>- Increased number of landscape area protected;</li> <li>- Quality assessment of land and especially agriculture land used;</li> <li>- Local/regional plan for agriculture land use developed;</li> <li>- Decreased number of illegal construction;</li> <li>- Number of individuals and/or local NGOs representatives participating to implementation of Program for preservation of landscapes;</li> <li>- Number of fees charged for illegal construction activities;</li> <li>- Number of fees charged for illegal fishing, hunting, tree cutting, unregulated waste disposal, unregulated waste water disposal, etc.;</li> </ul>
<b>Key stakeholders/partners involved</b>	<p>Producer Association/s: LAG “South Istria”, PZ Vodnjan</p> <p>Individual producers: Medea Vina, Babos Wine, Teraboto, Marčeta, Vinarija Meneghetti, San Tommaso, OPG Biasol, OPG Delton, OPG Giachin, Istrian de Dignan, OPG Damir Vandelić, OPG Sučić, OPG Toffetti, Agro –Istra, Udruga Agroturist Vodnjan, OPG Chiavalon Sandi, OPG Ristić Valter, OPG Vitasović Klaudio, OPG Jugovac Dalibor, OPG Macan Filip, OPG Šarić Stefano, OPG Danijela Šajkunić,</p> <p>Ecomuseum –Istrian de Dignan</p>

	<p>Park Kažuna – open air museum  Istrian Wine Tours – Enoteca Istriana  Udruga Agroturist Vodnjan/Agroturist association Vodnjan  Istarski Eko proizvod/Eco product Istria  Udruga Bio Istra/Bio Istria association  Agro udruga Fažana/Agro association Fažana</p>
<b>Connectivity to other activities</b>	<p>2.1. Educational programs development on biodiversity and landscape protection  2.2. Developing awareness raising communication materials and control mechanisms of land abandoning prevention and illegal construction building  3.1. Mapping, promotion, protection and encouragement through support measures of pilot areas in The Region of Istria</p>
<b>Potential resources</b>	<p>Local and regional self-government funds;  Ministry of Agriculture; Ministry of Construction and Spatial Planning;  EU funds;  Agency for payment in Agriculture, Rural Development and Fichery</p>
<b>Potential transfer of good practices</b>	<p>GP no. 3 Biodiversity friend<sup>7</sup>  GP no. 9 Handpicking the Grapes<sup>89</sup>  GP no. 21 Resistant grape varieties<sup>10</sup>  GP no. 24 Wine routes as promotional tool for viticulture<sup>11</sup>  High Natural Value farmland<sup>12</sup></p>
<b>Potential risks and obstacles</b>	<ul style="list-style-type: none"> <li>- Spatial use monitoring structure have no sufficient capacity to timely react on spatial and land deprivation due to illegal construction activities;</li> <li>- Conflict of interest between local/regional and national authorities related to landscape preservation;</li> <li>- Issuing of spatial/landscape protection decisions on national level is time consuming and slow;</li> <li>- Conflict of interests among local/regional and national stakeholders when it comes to influence of different construction lobbies or individual investors.</li> </ul>
<b>On which level the activity will be implemented (local/regional/national/) and which kind of document</b>	<p><i>Local and regional level:  Law on Spatial Planning; Program of Agriculture land management (on local level); Development plan of the agriculture in The Region of Istria; Strategy of VINISTRA;  EU Biodiversity Strategy 2030; Law on Nature Restoration</i></p>

<sup>7</sup> <https://biodiversityassociation.org/en/what-we-do/projects/conservation/biodiversity-friend/>

<sup>8</sup> <https://encyclopedia.pub/entry/11249>

<sup>9</sup> [https://www.15bodegas.com/es\\_en/blog/ecological-biodynamic-sustainable-wines-how-are-they-different](https://www.15bodegas.com/es_en/blog/ecological-biodynamic-sustainable-wines-how-are-they-different)

<sup>10</sup> <https://piwi-international.de/en/2016/03/fungus-resistant-grape-varieties/>

<sup>11</sup> <https://hrcak.srce.hr/file/302137>

<sup>12</sup> <https://www.eea.europa.eu/data-and-maps/data/high-nature-value-farmland-1>

<b>Name</b>	<b>2.1. Educational programs development on biodiversity and landscape protection</b>
<b>Time frame</b>	1-2 years
<b>Short activity description</b>	<p>Biodiversity and landscape preservation are the key topics for the future of the pilot area preservation and agro ecological practices implementation. Therefore, early education, as well as education of all levels could bring these topics to the focus and make them contribute to the overall area.</p> <p>The secondary school teachers, together with other relevant stakeholders such as institutions for adult education, universities and institutes for agronomy, associations connected with agronomy... will develop different modules of the educational program that could be used in formal and non-formal educational systems. Crucial part is to educate not only young people devoted to university degree education, but also to existing agriculturists, that have secondary educational degree and need to be educated now and taking into account their availability and dedication to possible education (given that they have limited time to devote to education in relation to the volume of work in the field).</p> <p>Once developed, this program could be shared with other regions as good practice and can become a part of the official educational curriculum. The development of educational programs on the importance of landscape preservation will improve ecosystem services and the development of touristic potentials.</p>
<b>Responsible person/institution</b>	<p>Town of Vodnjan-Dignano, Municipality of Bale, Municipality of Fažana</p> <p>Polytechic of Rijeka, Agricultural Department Poreč</p> <p>Pučko otvoreno učilište Pula/Public Open Academy Pula</p> <p>Pučko otvoreno učilište Addenda/Public Open Academy Addenda</p> <p>Istarski Eko proizvod/Istria Eco products</p> <p>Udruga Bio Istra/Bio Istria association</p> <p>Agro udruga Fažana/Agro association Fažana</p>
<b>Objectives</b>	1. Raising awareness and knowledge on the landscape preservation, including protection of the biodiversity and specific local products with added value

<b>Expected results</b>	<ul style="list-style-type: none"> <li>- Established database on local and regional biodiversity and landscape valuable features</li> <li>- Conducted informational focus groups with relevant stakeholders in order to define main milestones and curriculum parts</li> <li>- Defined target groups and training program goals</li> <li>- Developed curriculum with detailed programs for different trainee groups</li> <li>- Established Trainers' team</li> <li>- Conducted pilot training</li> <li>- Collected feedback from the pilot training</li> <li>- Adjusted training program in accordance with the collected feedback</li> <li>- Training program established as a continuous program for students, producers, tourist workers/households, etc.</li> <li>- Training program promoted to the wider audience and to other regions/countries interested in such activity</li> </ul>
<b>Indicators</b>	<ul style="list-style-type: none"> <li>- Amount of collected information on biodiversity and landscape features of the local and regional surrounding of the targeted area</li> <li>- Number of participants at focus group discussion, with special attention to the main stakeholders relevant for curriculum development</li> <li>- Competencies and fields of interest of the training team members (expertise and knowledge base)</li> <li>- Curriculum developed for the training – focusing on biodiversity and landscape characteristics and their preservation on the local and regional level</li> <li>- Number of trainees present at the pilot training</li> <li>- Number of feedbacks received at the end of pilot training</li> <li>- Qualitative update of the curriculum in accordance with the received feedback from the pilot training</li> <li>- Number of media promotion of the training program</li> <li>- Number of trainees applied and attended the training</li> </ul>
<b>Key stakeholders/partners involved</b>	<p>Producer Association/s: LAG "South Istria", PZ Vodnjan</p> <p>Individual producers: Medea Vina, Babos Wine, Teraboto, Marčeta, Vinarija Meneghetti, San Tommaso, OPG Biasol, OPG Delton, OPG Giachin, Istrian de Dignan, OPG Damir Vandelić, OPG Sučić, OPG Toffetti, Agro –Istra, Udruga Agroturist Vodnjan, OPG Chiavalon Sandi, OPG Ristić Valter, OPG Vitasović Klaudio, OPG Jugovac Dalibor, OPG Macan Filip, OPG Šarić Stefano, OPG Danijela Šajkunić,</p> <p>Ecomuseum –Istrian de Dignan</p> <p>Park Kažuna – open air museum</p> <p>Istrian Wine Tours – Enoteca Istriana</p> <p>Udruga Agroturist Vodnjan</p> <p>Istarski Eko proizvod</p> <p>Udruga Bio Istra</p> <p>Agro udruga Fažana</p> <p>Tourist board Fažana</p> <p>Tourist board Vodnjan</p> <p>Tourist board Bale</p>

<b>Connectivity to other activities</b>	2.3. Raising awareness and knowledge of wine makers and viticulturists about agroecological practices 3.3. Development of territory branding and specific touristic offers 3.1. Mapping, promotion, protection and encouragement through support measures of pilot areas in The Region of Istria
<b>Potential resources</b>	Local and regional self-government funds for educational programs (NGO project financing funds); Secondary school projects for adult education (Erasmus etc.); Producer association mobilizing their members and communities to take active participation; EU funds.
<b>Potential transfer of good practices</b>	GP no. 3 Biodiversity friend <sup>13</sup> GP no. 9 Handpicking the Grapes <sup>1415</sup> GP no. 21 Resistant grape varieties <sup>16</sup> GP no. 24 Wine routes as promotional tool for viticulture <sup>17</sup> High Natural Value farmland <sup>18</sup>
<b>Potential risks and obstacles</b>	<ul style="list-style-type: none"> <li>- Low level of prioritization of training programs for adult learning (informal training programs) creation at local and regional level and project funding priorities from local and regional budget (The Region of Istria, local government)</li> <li>- Lack of interest of target groups of trainees for the program</li> <li>- Lack of knowledge on these topics at the local and regional level (needed external trainers for organizing and their training)</li> </ul>
<b>On which level the activity will be implemented (local/regional/national/) and which kind of document</b>	<i>Local and regional level</i> <i>Development plan of the agriculture in The Region of Istria</i> <i>Strategy of VINISTRA</i> <i>Adult learning programs</i>

<b>Name</b>	<b>2.3. Raising awareness and knowledge of wine makers and viticulturists about agroecological practices</b>
<b>Objective of the Action Plan</b>	2. Raising awareness and knowledge on the landscape preservation, including protection of the biodiversity and specific local products with added value
<b>Time frame</b>	2 years
<b>Responsible person/institution</b>	Association of Istrian winegrowers and winemakers - Vinistra The Region of Istria

<sup>13</sup> <https://biodiversityassociation.org/en/what-we-do/projects/conservation/biodiversity-friend/>

<sup>14</sup> <https://encyclopedia.pub/entry/11249>

<sup>15</sup> [https://www.15bodegas.com/es\\_en/blog/ecological-biodynamic-sustainable-wines-how-are-they-different](https://www.15bodegas.com/es_en/blog/ecological-biodynamic-sustainable-wines-how-are-they-different)

<sup>16</sup> <https://piwi-international.de/en/2016/03/fungus-resistant-grape-varieties/>

<sup>17</sup> <https://hrcak.srce.hr/file/302137>

<sup>18</sup> <https://www.eea.europa.eu/data-and-maps/data/high-nature-value-farmland-1>

	<p>Agriculture Service providers (ex. Ministry of Agriculture – Department for Professional Support to Agriculture Development)</p> <p>Town of Vodnjan-Dignano, Municipality of Bale, Municipality of Fažana</p> <p>Polytechic of Rijeka, Agricultural Department Poreč</p> <p>Pučko otvoreno učilište Pula/Public Open Academy Pula</p> <p>Pučko otvoreno učilište Addenda/Public Open Academy Addenda</p> <p>Istarski Eko proizvod/Eco product Istria</p> <p>Udruga Bio Istra/Bio Istria association</p> <p>Agro udruga Fažana/Agro association Fažana</p>
<b>Objectives</b>	<p>The crucial part of the agroecological transition to more sustainable viticulture in pilot area is by engaging local wine-makers and viticulturists and raising their awareness about the benefits of using the agroecological practices in their vineyards. Besides raising their awareness is also very important to educate and train the owners and employees and to show to them examples of good practices and benefits of the usage of agroecological practices in their vineyards. The integration of a larger number of young people into the use of agroecological practices in viticulture can have a favorable effect on increasing labor productivity and the level of competitiveness because young people are more ready to acquire knowledge and apply technologies required by sustainable viticulture systems, which will be more resistant to future diseases and climate changes.</p>
<b>Expected results</b>	<ul style="list-style-type: none"> <li>- Developed a set of educational workshops to encourage local viticulturist to apply agroecological principles in vineyards</li> <li>- Accepted and implemented agroecological practices in vineyards</li> <li>- Strengthened lifelong and specialized education following the needs of the viticulture and viniculture sector</li> <li>- Raised awareness about agroecological practices in vineyards to the viticulture and wine sector in Istria</li> <li>- Encouraged Istrian viticulturist and wine-growers to start using the agroecological practices in their vineyards</li> </ul>
<b>Indicators</b>	<ul style="list-style-type: none"> <li>- Number of specific educational workshops developed</li> <li>- Number of specific educational workshops organized</li> <li>- Number of Istrian viticulturist and wine-growers participated at the workshops</li> <li>- Level of education and training of wine growers</li> <li>- Level of agroecological practices usage</li> <li>- Raised awareness about the proper education for the usage of agroecological practices</li> </ul>
<b>Key stakeholders/partners involved</b>	<ul style="list-style-type: none"> <li>- The Region of Istria - Administrative Department for Agriculture, Forestry, Hunting, Fisheries and Water Management</li> <li>- Local governments - Town of Vodnjan-Dignano, Municipality of Bale, Municipality of Fažana</li> <li>- Adult education institutions - Polytechic of Rijeka, Agricultural Department Poreč, Pučko otvoreno učilište Pula, Pučko otvoreno učilište Addenda</li> <li>- Faculty of Agriculture (Croatia)</li> </ul>

	<ul style="list-style-type: none"> <li>- Cooperatives, associations, related economic and professional associations in Istria</li> </ul>
<b>Connectivity to other activities</b>	<p>2.1. Educational programs development on biodiversity and landscape protection</p> <p>2.2. Developing awareness raising communication materials and control mechanisms of land abandoning prevention and illegal construction building</p> <p>3.2. Agroecology oriented winemakers network development</p>
<b>Potential resources</b>	Financial resources – budget from authorities on local, regional and national level and European Union funds (European agricultural fund for rural development, European Regional Development Fund and other similar Programmes to apply projects in this thematic)
<b>Potential transfer of good practices</b>	GP no. 22 Social learning and knowledge generation in agriculture
<b>Potential risks and obstacles</b>	<ul style="list-style-type: none"> <li>- Low or no interest of Istrian viticulturist and wine-makers in education</li> <li>- Weak arrangement regarding the organization and implementation of educational workshops</li> <li>- Impossibility of adopting quality system standards and certification</li> <li>- The absence of a stimulating politics</li> <li>- Insufficient coordination between public and private sector stakeholders and civil society at the national, regional and local levels</li> <li>- Insufficiently well-designed education</li> <li>- Risk of epidemiological and similar situations</li> </ul>
<b>On which level the activity will be implemented (local/regional/national/) and which kind of document</b>	<p>National, Regional and local level</p> <p>Documents:</p> <p>Development plan of the agriculture in Croatia</p> <p>Development plan of agriculture in The Region of Istria and</p> <p>Strategy of VINISTRA</p>

<b>Name</b>	<b>3.1. Mapping, promotion, protection and encouragement through support measures of pilot areas in The Region of Istria</b>
<b>Time frame</b>	3 years
<b>Short activity description</b>	Pilot area for Vin de Rosa production has significant value in the historical heritage of the City of Vodnjan - Dignan territory. Its revalorization can be done through specific targeting of producers needs for improving production and encouraging development, branding and promotion of specific touristic product.

<b>Responsible person/institution</b>	Istria County, Town of Vodnjan, Municipality of Bale, Municipality of Fažana Ministry of spatial planning
<b>Objectives</b>	3. Territory branding and specific touristic offer development that is in symbiosis with local tradition and customs, agroecological practices and biodiversity protection
<b>Expected results</b>	<ul style="list-style-type: none"> <li>- Conducted focus group discussions on the landscape heritage of the area focusing on Vin de Rosa territory (and the rest of the The Region of Istria territory) with relevant stakeholders</li> <li>- Assessed conditions and defined plan to revitalize Vin de Rosa territory landscapes</li> <li>- Larger areas under vineyards</li> <li>- Stimulated farmers to implement organic practices</li> <li>- Better quality and higher costs of the final products</li> <li>- Defined regional and local governments support measures for the territory development and revalorization (such as encouraging the planting of varieties for the production of Vin de Rosa according to agroecological practices, encouraging the education of producers, etc.)</li> <li>- Defined values of the heritage and used for developing consultative process for defining new and innovative touristic products of the area (based on the heritage and landscape)</li> <li>- Developed map with landmarks, landscape features and touristic products on regional level - promoted on local, regional, national and international level</li> <li>- Promotion through the Slow food community - Vin de Rosa Presidium - on international level</li> <li>- Installed high-quality tourist signalization for all mapped tourist locations</li> <li>- Tourist locations are accessible to everyone due to the new infrastructure and easy access paths</li> </ul>
<b>Indicators</b>	<ul style="list-style-type: none"> <li>- Number of participants from main stakeholder groups at focus group discussions</li> <li>- Number and quality of information collected and entered into the database</li> <li>- Level of details on the Map of landscape landmarks and vineyard characteristic points, together with touristic points and places to visit</li> <li>- Number of new wine producers using agroecology and redirecting the way of cultivation to agroecological practices</li> <li>- Share of different land use types converted to agriculture land use</li> <li>- Share of agriculture land use type converted to other land use types</li> <li>- Number of touristic products developed</li> <li>- Number of tourists visiting the area and using the newly developed map for their exploration of Vin de Rosa territory and the region</li> <li>- Number of promotional campaign hits and posts on social media</li> <li>- Number of easy access paths established</li> </ul>

<b>Key stakeholders/partners involved</b>	<p>Istria County, Town of Vodnjan, Municipality of Bale, Municipality of Fažana</p> <p>Ministry of spatial planning</p> <p>LAG "South Istria"</p> <p>Association of Istrian winegrowers and winemakers - Vinistra</p> <p>Istarski Eko proizvod/Eco product Istria</p> <p>Udruga Bio Istra/Bio Istria association</p> <p>Agro udruga Fažana/Agro association Fažana</p> <p>Tourist board Vodnjan</p> <p>Tourist board Fažana</p> <p>Tourist board Bale</p>
<b>Connectivity to other activities</b>	<p>1.1. Harmonization and implementation of concrete measures and control mechanisms in territory development on local and regional level</p> <p>1.2. Valorization, protection and encouragement through support measures of upgraded local products and touristic offers in The Region of Istria</p> <p>1.3. Identification and backing of improved touristic offer</p> <p>3.3. Development of territory branding and specific touristic offers</p> <p>2.2. Developing awareness raising communication materials and control mechanisms of land abandoning prevention and illegal construction building</p>
<b>Potential resources</b>	<ul style="list-style-type: none"> <li>- Local and regional self-government funds;</li> <li>- Secondary school projects for adult education (Erasmus, etc.);</li> <li>- Producer association mobilizing their members and communities to take active participation;</li> <li>- EU funds.</li> </ul>
<b>Potential transfer of good practices</b>	<p>GP no. 3 Biodiversity friend</p> <p>GP no. 9 Handpicking the grapes</p> <p>GP no. 21 Resistant grape varieties</p> <p>GP no. 24 Wine routes as promotional tool for viticulture</p>
<b>Potential risks and obstacles</b>	<ul style="list-style-type: none"> <li>- Low level of interest in the idea due to the lack of knowledge of busting potential on historical heritage;</li> <li>- High level of interest of different external investors for buying properties and change their original purpose (protection of the landscapes possible through legal protection as a national heritage or regional measures);</li> <li>- Low level of connectedness between vineyard owners and touristic organization/workers;</li> <li>- Conflict of interest with regional and national authorities.</li> </ul>
<b>On which level the activity will be implemented (local/regional/national/ ) and which kind of document</b>	<p>Local and regional level</p> <p>Documents:</p> <p><i>Development plan of the agriculture in The Region of Istria</i></p> <p>Law on planning systems (obligatory public participation)</p> <p>Landscape protection regulations at national and EU level</p>

<b>Name</b>	<b>3.2. Agroecology oriented winemakers network development</b>
<b>Time frame</b>	1-2 year
<b>Short activity description</b>	Based on the conducted analysis of local agricultural businesses that are either already engaged to or are interested for wine production, specific activities related to promotion and implementation of agroecological methods in vineyards and wine production are planned to be implemented within this activity. This will also include promotion of indigenous grape varieties growing as well as increase of production of recognized Vin de Rosa following the circled support in promotion and marketing of local producers' finalized products.
<b>Responsible person/institution</b>	Town of Vodnjan, Municipality of Bale, Municipality of Fažana LAG "South Istria" Association of Istrian winegrowers and winemakers - Vinistra
<b>Objectives</b>	3. Territory branding and specific touristic offer development that is in symbiosis with local tradition and customs, agroecological practices and biodiversity protection
<b>Expected results</b>	<ul style="list-style-type: none"> <li>- Increased area of vineyards with varieties for the production of Vin de Rosa according to agroecological practices</li> <li>- Increased local wine produces knowledge on agroecological methods in vineyards and wine production</li> <li>- Increased local wine producers knowledge on marketing and promotion</li> <li>- Increased interest for Vin de Rosa production by local agriculture businesses especially among young population</li> <li>- Improved quality and quantity of local wine production</li> <li>- Developed network of local wine producers</li> <li>- Improved marketing and promotion of local wine producers products</li> </ul>
<b>Indicators</b>	<ul style="list-style-type: none"> <li>- Number of hectares of vineyards that practice agroecological practices</li> <li>- Developed and conducted (certified) training program for agroecological methods and practices in vineyards and wine production</li> <li>- Conducted training of local produces on promotion and branding of their products</li> <li>- Number of agricultural businesses engaged to grape and wine production of Vin de Rosa and number of young persons engaged to production and/or growing</li> <li>- Network (formal or unformal) of wine producers established and is functional (ex. regular producers' communication, exchange of practices and information, participation in joint projects, etc.)</li> <li>- Local wine producers and their products connected to existing and/or new touristic products</li> </ul>

<b>Key stakeholders/partners involved</b>	<p>Producer Association/s: LAG “South Istria”, PZ Vodnjan</p> <p>Individual producers: Medea Vina, Babos Wine, Teraboto, Marčeta, Vinarija Meneghetti, San Tommaso, OPG Biasol, OPG Delton, OPG Giachin, Istrian de Dignan, OPG Damir Vandelić, OPG Sučić, OPG Toffetti, Agro –Istra, Udruga Agroturist Vodnjan, OPG Chiavalon Sandi, OPG Ristić Valter, OPG Vitasović Klaudio, OPG Jugovac Dalibor, OPG Macan Filip, OPG Šarić Stefano, OPG Danijela Šajkunić,</p> <p>Ecomuseum –Istrian de Dignan</p> <p>Park Kažuna – open air museum</p> <p>Istrian Wine Tours – Enoteca Istriana</p> <p>Udruga Agroturist Vodnjan/Agrotourist association Vodnjan</p> <p>Istarski Eko proizvod/Eco product Istria</p> <p>Udruga Bio Istra/Bio Istria association</p> <p>Agro udruga Fažana/Agro association Fažana</p> <p>Tourist board Fažana</p> <p>Tourist board Vodnjan</p> <p>Tourist board Bale</p>
<b>Connectivity to other activities</b>	<p>1.2. Valorization, protection and encouragement through support measures of upgraded local products and touristic offers in The Region of Istria</p> <p>2.3. Raising awareness and knowledge of wine makers and viticulturists about agroecological practices</p> <p>3.1. Mapping, promotion, protection and encouragement through support measures of pilot areas in The Region of Istria</p> <p>3.3. Development of territory branding and specific touristic offers</p>
<b>Potential resources</b>	<ul style="list-style-type: none"> <li>- Local and regional self-governance funds;</li> <li>- Ministry of Agriculture;</li> <li>- Agency for Payments in Agriculture, Fishery and Rural Development;</li> <li>- Ministry of Tourism and Tourist Boards</li> <li>- Different EU calls (ex. INTERREG calls)</li> </ul>
<b>Potential transfer of good practices</b>	<p>GP no. 3 Biodiversity friend<sup>19</sup></p> <p>GP no. 9 Handpicking the Grapes<sup>20</sup></p> <p>GP no. 21 Resistant grape varieties<sup>22</sup></p> <p>GP no. 24 Wine routes as promotional tool for viticulture<sup>23</sup></p> <p>High Natural Value farmland<sup>24</sup></p>

<sup>19</sup> <https://biodiversityassociation.org/en/what-we-do/projects/conservation/biodiversity-friend/>

<sup>20</sup> <https://encyclopedia.pub/entry/11249>

<sup>21</sup> [https://www.15bodegas.com/es\\_en/blog/ecological-biodynamic-sustainable-wines-how-are-they-different](https://www.15bodegas.com/es_en/blog/ecological-biodynamic-sustainable-wines-how-are-they-different)

<sup>22</sup> <https://piwi-international.de/en/2016/03/fungus-resistant-grape-varieties/>

<sup>23</sup> <https://hrcak.srce.hr/file/302137>

<sup>24</sup> <https://www.eea.europa.eu/data-and-maps/data/high-nature-value-farmland-1>

<b>Potential risks and obstacles</b>	<ul style="list-style-type: none"> <li>- Low level of cooperation between vineyard owners and touristic organization/workers;</li> <li>- Insufficiently well-designed education;</li> <li>- Lack of agricultural land for expansion/raising of vineyards;</li> <li>- Slow procedure for provision of agricultural land to producers;</li> <li>- Devastation of land due to uncontrollable building construction;</li> <li>- High costs of ecology practices in agriculture production;</li> <li>- Climate changes negative influences to natural habitat, conditions and environment in general.</li> </ul>
<b>On which level the activity will be implemented (local/regional/national/) and which kind of document</b>	<p>Local and regional level</p> <p>Documents:</p> <p>Development plan of the agriculture in The Region of Istria<sup>25</sup></p> <p>Strategic plan for rural development in The Region of Istria 2011-2013<sup>26</sup></p> <p>County Development Strategy 2011-2013<sup>27</sup></p> <p>Tourism Master Plan of The Region of Istria 2015-2025<sup>28</sup></p>

<sup>25</sup> <http://www.azrri.hr/index.php?id=102&L=210>

<sup>26</sup> <http://www.azrri.hr/index.php?id=102&L=210>

<sup>27</sup> <http://www.azrri.hr/index.php?id=102&L=210>

<sup>28</sup> [file:///C:/Users/Korisnik/Downloads/Master\\_Plan\\_Turizma\\_Istarske\\_Zupanije\\_2015-2025%20\(3\).pdf](file:///C:/Users/Korisnik/Downloads/Master_Plan_Turizma_Istarske_Zupanije_2015-2025%20(3).pdf)

### **3.2. MID-TERM STEPS FOR CONSERVATION OF LANDSCAPE AND HABITAT IN VITICULTURE AREA AND FOR VALORIZATION OF ECOSYSTEM SERVICES**

Medium-term steps encompass the most important actions for achieving the agroecological transition of viticulture in the Vodnjan-Fažana-Bale area, replicable in the Region of Istria in a period of 3 to 5 years.

#### **3.2.1. List of activities**

- 1.3. Identification and backing of improved touristic offer
- 2.2. Developing awareness raising communication materials and control mechanisms of agro ecological practices in viticulture, abandoning prevention and illegal construction building
- 3.3. Development of territory branding and specific touristic offers

#### **3.2.2. Description of each activitie**

<b>Name of Activity</b>	<b>1.3. Identification and backing of improved touristic offer</b>
<b>Time frame</b>	5 years
<b>Short activity description</b>	Working with relevant institutions and stakeholders to identify and evaluate eco-systems services to be used as a base for touristic offer which will be integrated with existing ecosystems and will support their preservation in Vin de Rosa territory and whole Istria region (touristic offer integrated as eco-touristic, e.g. viewpoints, bike and walking paths in line with landscape preservation, touristic valorization of religious objects and archeological sites, regulation and landscape preservation, etc.).
<b>Responsible person/institution</b>	Town of Vodnjan, Municipality of Bale, Municipality of Fažana Ministry of Tourism Istria Development Agency, Istrian Agency for Rural Development County and local self-governance (Vodnjan, Bale, Fažana) tourism boards LAG "South Istria", PZ Vodnjan
<b>Objectives</b>	1. Creation of long-term policies and conditions on local and regional level for improving the sustainability and productivity of the Istrian wine sector

<b>Expected results</b>	<ul style="list-style-type: none"> <li>- Identification of ecosystem services in Vin de Rosa territory and whole Istria;</li> <li>- Region creating the basis for developing eco touristic offer (further valorization of existing and new valuable sites and landscape characteristics in line with ecosystem preservation);</li> <li>- Developed map of important itineraries: religious objects, established bike and walking paths in line with landscape preservation;</li> <li>- Touristic valorization of existing natural and historical landmarks bolded promotion via Slow food community;</li> <li>- Regional, local and national support measures determined and concrete activities and packages for tackling improved touristic offer developed.</li> </ul>
<b>Indicators</b>	<ul style="list-style-type: none"> <li>- Ecosystem Services identified and operationalized in policies of the The Region of Istria and local governments (to enable good governance and prevent disruptions);</li> <li>- Interactive map developed and used for the individual and group tours;</li> <li>- Additional income and value created for local inhabitants and touristic workers/households;</li> <li>- Number of visitors collected through Slow food community - Vin de Rosa presidium;</li> <li>- Number of regional, local and national support measures developed.</li> </ul>
<b>Key stakeholders/partners involved</b>	<p>Producer Association/s: LAG "South Istria", PZ Vodnjan  Individual producers: Medea Vina, Babos Wine, Teraboto, Marčeta, Vinarija Meneghetti, San Tommaso, OPG Biasol, OPG Delton, OPG Giachin, Istrian de Dignan, OPG Damir Vandelić, OPG Sučić, OPG Toffetti, Agro –Istra, Udruga Agroturist Vodnjan, OPG Chiavalon Sandi, OPG Ristić Valter, OPG Vitasović Klaudio, OPG Jugovac Dalibor, OPG Macan Filip, OPG Šarić Stefano, OPG Danijela Šajkunić,  Ecomuseum –Istrian de Dignan  Park Kažuna – open air museum  Istrian Wine Tours – Enoteca Istriana  Udruga Agroturist Vodnjan/Agrotouris association Vodnjan  Istarski Eko proizvod/Eco product Istria  Udruga Bio Istra/Bio Istria association  Agro udruga Fažana/Agro association Fažana</p>
<b>Connectivity to other activities</b>	<p>1.1. Harmonization and implementation of concrete measures and control mechanisms in territory development on local and regional level;</p> <p>1.2. Valorization, protection and encouragement through support measures of upgraded local products and touristic offers in The Region of Istria;</p> <p>3.1. Mapping, promotion, protection and encouragement through support measures of pilot areas in The Region of Istria;</p>

	3.3. Development of territory branding and specific touristic offers.
<b>Potential resources</b>	<ul style="list-style-type: none"> <li>- Local and regional self-government funds;</li> <li>- Secondary school projects for adult education (Erasmus, etc.);</li> <li>- Producer association mobilizing their members and communities to take active participation;</li> <li>- EU funds.</li> </ul>
<b>Potential transfer of good practices</b>	GP no. 3 Biodiversity friend GP no. 9 Handpicking the grapes GP no. 21 Resistant grape varieties GP no. 24 Wine routes as promotional tool for viticulture
<b>Potential risks and obstacles</b>	<ul style="list-style-type: none"> <li>- Low level of prioritization of ecosystem services, not recognizing the potential;</li> <li>- Low level of promotion and interest for these services and their benefits for the local communities and citizens;</li> <li>- Private capital inflow – not respecting local landscape and cultural/historical heritage.</li> </ul>
<b>On which level the activity will be implemented (local/regional/national/) and which kind of document</b>	Local and regional level Documents: <i>Development plan of the agriculture in The Region of Istria</i> Law on planning systems (obligatory public participation) Landscape protection regulations at national and EU level

<b>Name of Activity</b>	<b>2.2. Developing awareness raising communication materials and control mechanisms of agroecological practices in viticulture, abandoning prevention and illegal construction building</b>
<b>Time frame</b>	5 years
<b>Short activity description</b>	Land abandonment is not only the problem of villages and people owning that land. It is an issue of the generations to come who have to think in time about this valuable resource. Awareness rising programs and control mechanisms will be developed under this activity in order to raise awareness of landscape preservation and reduction of land abandonment. The importance of land and its preservation, as well as landscape, will be embedded in different modules for categories from kindergarten to professional land usage inspectors.

	Also, reduction of illegal construction building on the farmlands, as well as wild waste dumps, is an urgent task of local and regional governments. Concrete measures and specific punishments and inspections on the regional territory are more than necessary.
Responsible person/institution	The Region of Istria Local governments: Town of Vodnjan, Municipality of Bale, Municipality of Fažana Agriculture Service providers (ex. Ministry of Agriculture – Department for Professional Support to Agriculture Development) LAG “South Istria”, PZ Vodnjan
Objectives	1. Raising awareness and knowledge on the landscape preservation, including protection of the biodiversity and specific local products with added value
Expected results	<ul style="list-style-type: none"> <li>- Established database on abandoned land in the Bale-Fažana-Vodnjan and the rest of the The Region of Istria territory;</li> <li>- Established online interactive marketplace tool for offering land that will serve to the overall campaign against land abandoning;</li> <li>- Defined awareness raising program, targeting different actors of land abandonment problem, focusing also to land and landscape preservation importance and illegal construction building and wild waste dumps issues solutions;</li> <li>- Designed control mechanisms for preventing land abandonment, illegal construction building and wild waste dumps at local and regional level;</li> <li>- Awareness raising program promoted to the wider audience and to other regions interested in this important land protection process.</li> </ul>
Indicators	<ul style="list-style-type: none"> <li>- Percentage of registered land and abandoned parcels at the territory;</li> <li>- Defined higher standards regulations that influence reduction of the abandonment;</li> <li>- Detailed awareness raising program developed;</li> <li>- Number of participants that took part in the land registration (real data collection – field based);</li> <li>- Number of local regulations adopted;</li> <li>- Campaign reach results;</li> <li>- Feedbacks collected and received during and at the end of the campaign;</li> <li>- Number of media promotion of the awareness raising campaign;</li> <li>- Detailed control mechanisms for preventing land abandonment, illegal construction building and wild waste dumps at local and regional level designed.</li> </ul>

Key stakeholders/partners involved	<p>The Environmental Protection and Energy Efficiency Fund</p> <p>Ministry of Economy and Sustainable Development, Ministry of Spatial Planning</p> <p>Agriculture Service providers (ex. Ministry of Agriculture – Department for Professional Support to Agriculture Development)</p> <p>Istria County, Town of Vodnjan, Municipality of Bale, Municipality of Fažana</p> <p>LAN “South Istria”, PZ Vodnjan</p> <p>Association of Istrian winegrowers and winemakers - Vinistra</p> <p>Istarski Eko proizvod/Eco product Istria</p> <p>Udruga Bio Istra/Bio Istria association</p> <p>Agro udruga Fažana/Agro association Fažana</p>
Connectivity to other activities	<p>1.1 Harmonization and implementation of concrete measures and control mechanisms in territory development on local and regional level;</p> <p>1.3. Identification and backing of improved touristic offer;</p> <p>2.2. Developing awareness raising communication materials and control mechanisms of land abandoning prevention and illegal construction building;</p> <p>3.1. Mapping, promotion, protection and encouragement through support measures of pilot areas in The Region of Istria;</p> <p>3.3. Development of territory branding and specific touristic offers</p>
Potential resources	<ul style="list-style-type: none"> <li>- Local, regional self-government funds and national funds;</li> <li>- Secondary school projects for adult education (Erasmus, etc.);</li> <li>- Producer association mobilizing their members and communities to take active participation;</li> <li>- EU funds.</li> </ul>
Potential transfer of good practices	<p>GP no. 3 Biodiversity friend</p> <p>GP no. 9 Handpicking the grapes</p> <p>GP no. 21 Resistant grape varieties</p> <p>GP no. 24 Wine routes as promotional tool for viticulture</p>
Potential risks and obstacles	<ul style="list-style-type: none"> <li>- Low level of prioritization of awareness raising programs for environmental protection (including land);</li> <li>- Most of the regulations on land use are settled on a national level - problems with slow and inert national government administration, jurisdiction problems, etc.;</li> <li>- Lack of interest of target groups.</li> </ul>
On which level the activity will be implemented (local/regional/national/)	<p>Local, regional level and national level</p> <p>Documents:</p> <p><i>Development plan of the agriculture in The Region of Istria</i></p> <p>Law on planning systems (obligatory public participation)</p>

and which kind of document	Landscape protection regulations at national and EU level
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<b>Name of Activity</b>	<b>3.3. Development of territory branding and specific touristic offers</b>
<b>Objective of the Action Plan</b>	3. Territory branding and specific touristic offer development that is in symbiosis with local tradition and customs, agroecological practices and biodiversity protection
<b>Time frame</b>	5 years
<b>Responsible person/institution</b>	<ul style="list-style-type: none"> <li>- The Region of Istria - Administrative Department for Tourism</li> <li>- Tourist Board of The Region of Istria</li> <li>- The Region of Istria - Administrative Department for Agriculture, Forestry, Hunting, Fisheries and Water Management</li> </ul>
<b>Objectives</b>	<p>In order to create a tourism offer based on local resources combining wine roads, gastronomy, culture and nature, branding and specializing in touristic offer is needed. Guests are more aware of the need to be sustainable and focused on quality content, accommodation and organic food.</p> <p>The holistic approach is necessary to involve and create a quality network of stakeholders that will form a rounded system - from producers, accommodation providers, tourism workers and content activity providers.</p> <p>Eco-agritourism is considered the future of the combination of agriculture, catering, gastronomy and tourism in Istria. Thus scheme could be easily adapted and in line with the wine farms that will use agroecological practices and its products could be offered through this kind of tourism offer in The Region of Istria.</p> <p>The tourism offer of luxury houses and accommodation in The Region of Istria is rising from year to year and the demand is rapidly increasing. Luxury accommodation has become a preference for discerning travelers who want to enjoy a vacation without compromise. Customized itineraries and tailored services for guests are from the high-class accommodation, which is most important to this kind of visitor. This kind of tourist offer is very important for wine packages and special experiences in vineyards and this is why the local viticulturist and owners of wine farms need support from the regional and local tourist boards of The Region of Istria in order to promote this type of specific and targeted tourism offer. The main objective of this action is to connect this kind of visitors with the Istrian wine farms and wine-growers because they are prepared to pay a higher</p>

	<p>price for a special experience in vineyards, tasting wines and local agri-food products and especially buy bottles of wine to enjoy it on their vacation or taking them home.</p> <p>The advantages of wine tourism in Istria are a quality and long tradition of viticulture and wine production. The result is a wine of exceptional quality, which is not only recognized on the regional and national level but is recognized internationally and worldwide. This is why on the regional and local level, through tourist boards and in accordance with Istrian viticulturist and wine- makers need to be promoted and created a strong branding through sustainable Istrian diet and food based on local viticulture.</p>
<b>Expected results</b>	<ul style="list-style-type: none"> <li>- Created ground for developing a strong and sustainable regional brand based on viticulture and agriculture of The Region of Istria;</li> <li>- Created the precondition for a strong story – brand about The Region of Istria viticulture and wine-sector;</li> <li>- Encouraged Istrian viticulturist and wine-makers to become a part of a unified regional wine brand;</li> <li>- Ensured easier path to the wine market on the local, national and international levels, to the new wine-growers;</li> <li>- Encouraged and educated owners of the existing agritourism to become eco-agritourism providers;</li> <li>- Raised awareness and encouraged owners of wine farms to expand their business and build eco-agritourism;</li> <li>- Raised Istrian winemakers and wine-growers income and expansion of their business in a more sustainable way;</li> <li>- Diversified green, slow and sustainable tourism in The Region of Istria;</li> <li>- Increased number of visitors who seek this kind of tourism;</li> <li>- Promoted indigenous and typical local wine varieties;</li> <li>- Promoted local agri-food products and wine varieties;</li> <li>- Promoted traditional way of producing wine in line with the promoted traditional vineyards landscape;</li> <li>- Encouraged Istrian viticulturist and wine-makers to maintain the landscape of the landscape in line with the landscape and ecosystem;</li> <li>- Raised quality of life in rural areas;</li> <li>- Attract young people to live and work in rural areas of Istria</li> <li>- Created a new specialized luxury tourism offer based on vineyards and wine offer;</li> <li>- Attracted high-class visitors, willing to pay for a special luxury experience in The Region of Istria vineyards;</li> <li>- Prolongation of the tourism season;</li> <li>- Encouraged Istrian viticulturist and wine-makers to be a part of this type of high-class tourism package;</li> <li>- Increased income of Istrian viticulturist and wine-makers;</li> <li>- Diversified green, slow and sustainable tourism in The Region of Istria;</li> <li>- Encouraged Istrian viticulturist and wine-makers to maintain the landscape of the vineyards in line with the landscape and ecosystem;</li> </ul>

	<ul style="list-style-type: none"> <li>- Promotion of The Region of Istria as a unique landscape with picturesque vineyards worth exploring;</li> <li>- Created promotional content regarding luxury experience in vineyards;</li> <li>- Attract young people to live and work in rural areas of Istria.</li> </ul>
<b>Indicators</b>	<ul style="list-style-type: none"> <li>- Number of strategies and plans which had adopted branding of The Region of Istria based on local viticulture and agriculture;</li> <li>- Number of new promotional material (videos, brochures and similar) promotion this viticulture and agriculture branding;</li> <li>- Number of viticulturist and wine farms included in the regional branding;</li> <li>- Level of financial investments in the regional branding;</li> <li>- Number of policymakers and actors included in this crucial project;</li> <li>- Number of newly opened or changed structures from agritourism to eco- agritourism in The Region of Istria;</li> <li>- Number of strategies and plans which had adopted this kind of tourism offer in their guidelines and actions;</li> <li>- Number of tourist boards and tourist agencies who will include this tourism offer in their promotional campaign and brochures;</li> <li>- Number viticulturist included or interested in this kind of tourism offer;</li> <li>- Level of awareness about the agroecological practices usage in the vineyards;</li> <li>- Number of luxury holiday houses which work with local viticulturist in order to offer this kind of tourist offer;</li> <li>- Number of strategies and plans which had adopted this kind of tourism offer in their guidelines and actions;</li> <li>- Number of tourist boards and tourist agencies who will include this tourism offer in their promotional campaign and brochures;</li> <li>- Level of awareness about the agroecological practices usage in the Vineyards.</li> </ul>
<b>Key stakeholders/partners involved</b>	<p>Istrian development tourism agency - IRTA</p> <p>Local tourist boards – Town of Vodnjan, Municipality of Bale, Municipality of Fažana</p> <p>Chamber of Trades and Crafts OF The Region of Istria</p> <p>Association of Istrian winegrowers and winemakers – Vinistra United</p> <p>local governments (cities and municipalities) in the Region of Istria</p> <p>Local winemakers and viticulturist</p>
<b>Connectivity to other activities</b>	<p>1.2. Valorization, protection and encouragement through support measures of upgraded local products and touristic offers in The Region of Istria;</p> <p>1.3. Identification and backing of improved touristic offer;</p> <p>2.3. Raising awareness and knowledge of wine makers and viticulturists about agroecological practices;</p> <p>3.2. Agroecology oriented winemakers' network development.</p>

<b>Potential resources</b>	Financial resources – budget from authorities on regional and national level and European Union funds (European Agricultural fund for Rural Development, European Regional Development Fund and other similar Programs to apply projects in this thematic)
<b>Potential transfer of good practices</b>	GP no. 3 Biodiversity friend GP no. 9 Handpicking the grapes GP no. 21 Resistant grape varieties GP no. 24 Wine routes as promotional tool for viticulture
<b>Potential risks and obstacles</b>	<ul style="list-style-type: none"> <li>- Risk of mass tourism</li> <li>- Risk of abandonment of rural areas of The Region of Istria</li> <li>- The inability of agritourism owners and wine-makers to recognize the potential of this tourist offer type</li> <li>- Unused potential in terms of price and quality of the product</li> <li>- Insufficient financial resources</li> <li>- Risk of epidemiological and similar situations</li> <li>- Faintly thought-out branding strategy</li> <li>- Giving the advantage to the specific wine-makers and viticulturist</li> </ul>
<b>On which level the activity will be implemented (local/regional/national ) and which kind of document</b>	Regional and local level through Master plan of tourism in The Region of Istria, Development plan of the agriculture in The Region of Istria, Strategy of VINISTRA

### **3.3. LONG TERM STEPS FOR CONSERVATION OF LANDSCAPE AND HABITAT IN VITICULTURE AREA AND FOR VALORIZATION OF ECOSYSTEM SERVICES**

Long term steps encompass the most important actions for achieving the agroecological transition of viticulture in the Vodnjan-Fažana-Bale area, replicable in the Region of Istria over a longer period, from more than 7 years.

#### **3.3.1. List of activities**

1.2. Valorization, protection and encouragement through support measures of upgraded local products and touristic offers in The Region of Istria

Above mentioned activity should be implemented taking into account Biodiversity strategy 2030<sup>29</sup>, Convention on European Landscapes (ELC)/Konvencija o europskim krajobrazima<sup>30</sup> and Nature restoration law<sup>31</sup>.

#### **3.3.2. Description of each activity**

<b>Name</b>	<b>1.2. Valorization, protection and encouragement through support measures of upgraded local products and touristic offers in the Region of Istria</b>
<b>Time frame</b>	7 years
<b>Short activity description</b>	The ELC, as well as the Convention for the Safeguarding of the Intangible Cultural Heritage and the Framework Convention on the Value of Cultural Heritage for Society formally recognized and highlighted the landscape concept as central to matters of sustainability and the management of public spaces. It received a higher status in spatial planning and the meaning of 'landscape' – what it is and what it does – is subject to on-going discussions in relation to legislation, policy, planning, and management. <sup>32</sup> Municipalities must raise awareness to increase the community's understanding of biodiversity issues that affect the city and which can have an impact on the lives of its inhabitants.

<sup>29</sup> <https://dopa.jrc.ec.europa.eu/kcbd/actions-tracker/>

<sup>30</sup> [https://narodne-novine.nn.hr/clanci/međunarodni/2002\\_10\\_12\\_144.html](https://narodne-novine.nn.hr/clanci/međunarodni/2002_10_12_144.html)

<sup>31</sup> [https://environment.ec.europa.eu/topics/nature-and-biodiversity/nature-restoration-law\\_en#related-strategies](https://environment.ec.europa.eu/topics/nature-and-biodiversity/nature-restoration-law_en#related-strategies)

<sup>32</sup> <https://www.ieabioenergy.com/wp-content/uploads/2018/09/ExCo2018-03-1.pdf>

<b>Responsible person/institution</b>	<p>The Region of Istria - Administrative Department for Tourism</p> <p>Tourist Board of The Region of Istria</p> <p>The Region of Istria - Administrative Department for Agriculture, Forestry, Hunting, Fisheries and Water Management</p>
<b>Objectives</b>	<p>3. Territory branding and specific touristic offer development that is in symbiosis with local tradition and customs, agroecological practices and biodiversity protection</p>
<b>Expected results</b>	<ul style="list-style-type: none"> <li>- Conducted focus group discussions on the landscape heritage of the area focusing on Vin de Rosa territory (and the rest of the The Region of Istria territory) with relevant stakeholders;</li> <li>- Increased local population awareness on need for landscape protection and ecosystem services development;</li> <li>- Improved monitoring of landscape protection legislation implementation on local and regional level (ex. defined activities for illegal construction prevention and agricultural land protection and/or quality improvement, EU Biodiversity strategy till 2030 and Nature Restoration Law implementation on local and regional level, development of Local Biodiversity Strategy and Action Plan (LBSAP);</li> <li>- Assessed conditions and defined plan to revitalize Vin de Rosa territory landscapes;</li> <li>- Defined regional and local governments support measures for the territory development and revalorization (such as encouraging the planting of varieties for the production of Vin de Rosa according to agroecological practices, encouraging the education of producers, implementation of protective measures in line with EU Biodiversity Strategy and Nature Restoration Law, implement measures for prevention of agricultural land deprivation, etc.);</li> <li>- Mapped pilot area landscape features and their connection to ecosystem services;</li> <li>- Defined values of the heritage and used for developing consultative process for defining new and innovative touristic products of the area (based on the heritage and landscape);</li> <li>- Developed map with landmarks, landscape features and touristic products on regional level - promoted on local, regional, national and international level.</li> </ul>

<b>Indicators</b>	<ul style="list-style-type: none"> <li>- Number of participants from main stakeholder groups at focus group discussions;</li> <li>- Number and quality of information collected and entered into the database;</li> <li>- Number of LBSAP<sup>33</sup> issued on County level;</li> <li>- Number of activities/measures implemented on local level that are in line with EU Biodiversity Strategy 2030 and Nature Restoration Law;</li> <li>- Level of details on the Map of landscape landmarks and vineyard characteristic points, together with touristic points and places to visit;</li> <li>- Number of new wine producers using agroecology and redirecting the way of cultivation to agroecological practices;</li> <li>- Share of different land use types converted to agriculture land use;</li> <li>- Share of agriculture land use type converted to other land use types;</li> <li>- Number of touristic products developed;</li> <li>- Number of tourists visiting the area and using the newly developed map for their exploration of Vin de Rosa territory and the region;</li> <li>- Number of promotional campaign hits and posts on social media;</li> <li>- Number of easy access paths established.</li> </ul>
<b>Key stakeholders/partners involved</b>	<ul style="list-style-type: none"> <li>- The Region of Istria</li> <li>- Local governments</li> <li>- Individual producers</li> <li>- Other relevant stakeholders with support of Producer association and local NGOs</li> <li>- Touristic agencies</li> <li>- Business community</li> <li>- Touristic entities (rural and general)</li> </ul>
<b>Connectivity to other activities</b>	<p>1.1. Harmonization and implementation of concrete measures and control mechanisms in territory development on local and regional level;</p> <p>1.3. Identification and backing of improved touristic offer;</p> <p>3.1. Mapping, promotion, protection and encouragement through support measures of pilot areas in The Region of Istria;</p> <p>3.3. Development of territory branding and specific touristic offers;</p> <p>2.2. Developing awareness raising communication materials and control mechanisms of land abandoning prevention and illegal construction building.</p>
<b>Potential resources</b>	<ul style="list-style-type: none"> <li>- Local and regional self-government funds</li> <li>- Secondary school projects for adult education (Erasmus etc);</li> <li>- Producer association mobilizing their members and communities to take active participation</li> </ul>

<sup>33</sup> LBSAP – Local Biodiversity Strategy and Action Plan

	- EU funds
<b>Potential transfer of good practices</b>	<p>GP no. 3 Biodiversity friend</p> <p>GP no. 9 Handpicking the grapes</p> <p>GP no. 21 Resistant grape varieties</p> <p>GP no. 24 Wine routes as promotional tool for viticulture</p> <p>Development of LBSAP – Local Biodiversity Strategy and Action Plan<sup>34</sup></p> <p>Regional and/or local incentive measures for viticulture and/or farming based on agroecological principles</p>
<b>Potential risks and obstacles</b>	<ul style="list-style-type: none"> <li>- Low level of interest of local and regional self-governance to make biodiversity and nature restoration development priorities ;</li> <li>- Lack of interest and/or capacities to firmly implement spatial planning law;</li> <li>- High level of interest of different external investors for buying properties and change their original purpose (protection of the landscapes possible through legal protection as a national heritage or regional measures);</li> <li>- Low level of connectedness between vineyard owners and touristic organization/workers;</li> <li>- Low level of interest in the idea due to the lack of knowledge of busting potential on historical heritage;</li> <li>- Conflict of interest with regional and national authorities.</li> </ul>
<b>On which level the activity will be implemented (local/regional/national/) and which kind of document</b>	<p>Local and regional level</p> <p>Documents:</p> <p><i>Development plan of the agriculture in The Region of Istria</i></p> <p>Law on planning systems (obligatory public participation)</p> <p>Landscape protection regulations at national and EU level</p>

<sup>34</sup> <https://greenbestpractice.jrc.ec.europa.eu/node/398>

## 4. CONCLUSIONS

Analysis conducted within ECONVINEGOALS project for the targeted pilot area of Vodnjan – Bale – Fažana area includes detailed analysis of pilot area natural, social and historical conditions to be taken into account and that influence further development and management of viticulture in targeted area. Three main objectives have been determined following by activities and their time frame for implementation (short, mid and long term) in order to intensify viticulture in Vodnjan-Bale-Fažana area based on synergy of that development with quality management of local and regional natural resources and biodiversity.

Defined objectives start by needed policy adjustments and development that would improve conditions to foster revitalization of viticulture taking into account specific conditions and needs related to spatial planning, tourism and economic development, social, natural and historical heritage that makes the area recognizable on global level.

Preservation of natural habitat and landscapes should be of priority for local and regional level decision and policy makers due to high interest for land among tourism sector that often leads to agricultural and/or natural habitat and landscape deprivation. Additionally, existing spatial and natural habitats that include also historical heritage of The Region of Istria is obviously part of specific and larger ecosystem that should be part of balanced development planning following EU Biodiversity Strategy 2030 and Law on Nature Restoration. Good practices already implemented prove potential for use of natural and spatial conditions to improve regional and local touristic offer thus assuring proper valorization, protection and preservation of natural habitat and landscapes of The Region of Istria and Vodnjan-Bale-Fažana area within it.

High importance in implementation of defined strategic activities includes raising awareness among local population and tourist visitors by implementing targeting communication strategies including development of specific promotional activities and materials to promote local and regional spatial, natural and cultural heritage protection needs. This also includes developing of specific educational programs that would increase knowledge among local population on implementation of agroecological practices especially in viticulture aiming to assure long term preservation and protection of natural habitat and landscapes.

Although the territory is small compared to the entire region, the uniqueness is in representing the direction of sustainable winemaking for the entire region. In order to revitalize and foster development of viticulture on local area of Vodnjan-Bale-Fažana concrete activities will include identification and further development of specific viticulture offer (ex. Vin de Rosa production) and development of unique touristic offer based on local natural and historical tangible and/or intangible heritage. Other activities will include also development of

local area winemakers' network and territory branding. Implementation of local action plan activities will assure long – term sustainability and preservation of Vodnjan-Bale-Fažana area.

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# Ecological Vineyards Governance Activities for Landscape's Strategies

Deliverable T2.3.1

## Local action plans for conservation of landscape and habitats in viticultural areas and for valorisation of ecosystem services

Responsible Partner

Business Development Centre Kragujevac

Date 23.05.2022.

Update 30.08.2022

## **BASIC PROJECT INFORMATION:**

PROGRAMME CALL: INTERREG V-B Adriatic-Ionian ADRION

Project Acronym ECOVINEGOALS

Project Number: 866

Programme Priority Axis: 2

Start – End Date: 01.03.2020 – 31.08.2022

Total budget: EUR 1 939 505.59

ERDF: 1 399 759.25 IPA: 248 820.5

**Lead Partner Organisation: LAG Eastern Venice, Italy**

Url: [www.ecovinegoals.interregadrion.eu](http://www.ecovinegoals.interregadrion.eu)

## **DOCUMENT INFORMATION**

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<b>Dissemination Level</b>	PU

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August/2022

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## Project Summary

ECOVINEGOALS promotes sustainability and resilience in the winemaking industry by encouraging the transition of intensive viticulture towards agroecological management systems that protect natural habitats and landscapes, while reducing chemical and fossil fuel inputs and harmful emissions. The project aims to enhance stakeholders' skills in participatory local governance, to strengthen transnational cooperation and provide specific transnational instruments to promote, support and manage the agroecological transition.

### **Expected results**

- Sharing between partners in the ADRION countries of fundamental concepts and practices necessary for the transition from intensive viticulture management systems, towards agroecological management methods.
- Improvement of the participatory local governance skills of decision makers and all other viticulture stakeholders, both public and private, to jointly develop and define strategies and plans aiming to protect natural habitats and rural landscapes.
- Transnational communication, cooperation, and exchange between regional authorities and civil society organizations concerning common objectives to protect vulnerable environments, to promote ecosystem services, to prevent or mitigate climate change, and to avoid social conflicts in land use.
- An increase in the number and quality of tools and strategies available to support the planning and management of the agroecological transition of viticulture systems in the region.

### **Partnership:**

<b>PP1- LP</b>	<b>LAG EASTERN VENICE, VEGAL (IT)</b>
PP2	Autonomous Province of Trento, PAT (IT)
PP3	Chamber of Agriculture and Forestry of Slovenia, KGZS-Zavod GO (SI)
PP4	Research Centre of the Slovenian Academy of Sciences and Arts, ZRC SAZU (SI)
PP5	Agency for Rural Development of Istria Ltd Pazin, AZRRI (HR)
PP6	Association for the promotion of employment, vocational training and education, INFORMO (HR)
PP7	Business Development Center Kragujevac, BDCKG (RS)
PP8	Foundation Business Start-up Center Bar, BSC BAR (ME)
PP9	Municipality of Bar, BAR (ME)
PP10	Mediterranean Agronomic Institute of Chania, CIHEAM MAICh (EL)

### Associated Partners (APs):

General Union Cisl Cultivators Venice (IT)
Bio district of production and biological community of central-eastern Venice - BIO VENICE (IT)
IAL - Innovation Learning Work S.r.l. - Social enterprise (IT)
AIAB-Italian Organic Agriculture Association (IT)
Agroecologiki SP (EL)
Municipality of Topola (RS)
Šumadija winemakers association (RS)
Ministry of Agriculture and Rural Development (HR)
Agroecology Europe (BL)

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## INTRODUCTION

The reconciliation between habitat and landscape protection and grapevine cultivation is a common challenge for ADRION area in order to safeguard the sustainability of economic activities based on territorial capital. These challenges must be tackled by an integrated approach pursuing technical, economic, social, cultural, and governance objectives. The corresponding project-outputs concern the sharing of tools and strategies to encourage the agroecological transition of wine growing areas. Overcoming these challenges also entails the increase of population awareness on the impacts of intensive wine systems on habitat and landscape and the adoption of participatory governance methodologies involving citizens, public authorities and stakeholders.

The agroecological transition entails a long-term process of adopting tailored solutions to context specific challenges of different viticultural landscapes via multi-stakeholder combined actions toward mutually set goals and a common challenge of the respect of environment, economic and social equilibriums of a given territory and a given culture.

Following a common methodology based on backcasting, project partners had conducted the participatory backcasting workshops in their pilot area, where they had initiated the process of the agroecological transition of their chosen viticultural landscape. Trained and educated facilitators through several local workshops, based on the "Manual of Participatory Governance for Agroecological Transition", had collected the data about the most valuable and vulnerable elements of the pilot area, defined the possible solutions through SWOT analysis and with the relevant stakeholders demarcated the actions needed for the agroecological transition.

## **1. BACKGROUND OF THE PILOT AREA**

After more than 50 years, the Census of Agriculture, conducted in 2012 by Statistical Office of the Republic of Serbia, collected data on present situation in agriculture and viticulture. At approximately the same time, after more than 40 years, new geographical zoning of viticulture production areas in Serbia was carried out by the Ministry of Agriculture, Forestry and Water Management. On the territory of Serbia, based on data from the Republic Statistical Office, in 1955 there were about 135,000 hectares of vineyards, while today, in Serbia, the area of about 25.000ha is under vineyards, out of which 22.150ha is in Central Serbia and Vojvodina. About 75.7% of total area is used to produce wine grapes and 24.3 % is used to produce table grapes. Viticulture zoning divides the territory of Serbia into three wine growing units, comprised of 22 regions, 77 wine growing districts and a large number of wine growing oases. One of them is Oplenac, Topola - the winegrowing sub region (district).

Grape production participates with about 10% in the total fruit production of the Republic of Serbia. Grape yields is the third ranked production of the total fruit production, right after production of apples and plums, which are the leading fruit species in Serbia.

The Sumadija region covers an area of 248.282,8 ha, where the largest vineyards are in Kragujevac. In the Šumadija region there are 1.119,79 ha of vineyards (about 1.038,71 ha of native vineyards, or 91.78% of the total area of listed vineyards in this region), out of which 585,58 ha are vineyards with table varieties and 534,21 ha with wine varieties. In this region, 5.000 farms (agricultural holdings) own vineyards, which is about 12,84% of the total number of agricultural farms in this region. The largest number of winegrowers is in the municipality of Smederevska Palanka, although the municipality of Topola has the largest area under vineyards.

Oplenac vineyards, located in the Sumadija region, cover about 280ha of vineyards which are registered under the Vineyard register. This also includes the municipality of Topola.

The area of the municipality Topola covers 35698ha and 81.5% belongs to the agricultural area. The area of the municipality Topola is located between 44 ° 09' and 44 ° 22' north altitude, and 18 ° 07' and 18 ° 31' east longitude. Topola municipality includes 31 settlements with 22329 inhabitants.

Favourable natural conditions of Topola area have made the human presence possible in this area from the ancient times since Palaeolithic. The area has been inhabited ever since then, with the agriculture as the main economy sector of its inhabitants. Due to its rich history connected to Serbian efforts towards independence and royal family Karadjorevic who lived in Topola, and beautiful landscapes and natural features, Topola is classified as a very important touristic destination in Serbia. Beside agriculture, tourism is another important sector of economy in Topola. The touristic potential of Topola is strong, but it is not used to its full extent.

### **History of grape and wine production**

One of the key agriculture sectors in Topola is viticulture. The historical documents from the era of the First Serbian Uprising (1804) say that in that time grapes were produced in big quantities, and that there was not enough space for their storage. Vineyards and the Winegrowers house are in the immediate surrounding of the St. George's church, right on the slopes of Oplenac hill. The church property was used for grape processing until the First World War. One of the evidences preserved from this royal cellar from those times, is the barrel from 1909, which King Peter I received as a gift. The development of viticulture in the area was continued by the King Alexander I, who has initiated planting of quality grape varieties on over 50 hectares. At those times, wines from this area were internationally known for their quality, and they were served in foreign royal courts.

In 1903, 12 farmers, respectable village producers ("domacini") from the Banja village near Arandjelovac,

founded the first viticulture cooperative in Serbia. They accepted their King Peter the 1<sup>st</sup> Karadjordjevic as their member. Later in time, his son, Aleksandar Karadjordjevic the 1<sup>st</sup>, became a member too. Following 30 years, the cooperative has had wine cellars at the level of the best European ones, exporting wines and champagne. In 1938, when there was hardly any transportation between the towns in Serbia, this cooperative hosted around 10.000 tourists. One of the visitors was Eleanor Roosevelt, the first lady of America at the time.

Today, the Royal Winery, established on the foundations of the winery of the prince Alexander is still well known. The vineyard and the winery itself were renovated by the King Alexander who found and brought varieties that were resistant to the phylloxera which plagued Europe at the times.

The most famous story to date is about the barrel number 48, which contained the best royal wines and was preserved from the Red Army in the Second World War. This barrel has been kept intact ever since then.

Today, Topola is one of the most important viticulture areas in Serbia, with 19 wineries and almost 300 ha of vineyards. Wines from Topola wineries are recognized to its high quality and winners of numerous international wine awards.

## **2. SWOT ANALYSIS OF THE PILOT AREA**

### **Main strengths of the local viticulture**

The Topola municipality is located in a hilly-hilly belt where the forests of pedunculate oak, ash, willow, poplar, cer and malt oak, as well as beech forests predominate. **The main feature of the landscape of this region are hilly and undulating terrains that are often forested**, especially on higher terrains, slopes of Mount Rudnik, as well as numerous orchards and plots with field crops.

The landscapes of this region are influenced by the river valleys, where mainly field crops are represented.

**The municipality of Topola mostly consists of agricultural land, 81.5% (29093.56 ha)** of the area. Most of the region is located at altitudes of 80 to 400 m, but the areas where the vineyards are located at altitudes of 150 to 350 m. The altitude of the region is gradually decreasing from the southwest to the northeast of the region.

The most represented autochthonous and regional varieties by area are Prokupac, Smederevka, Vranac, Tamjanika (group Tamjanika) and international grape varieties by area are Merlot, Cabernet Sauvignon, Chardonnay Riesling, Sauvignon blanc, Cabernet Franc, Pinot Blanc, Muscat Hamburg, Sangiovese, Palava.

The age structure of vineyards is such that the largest areas under vineyards are in the group that includes those aged between 10 and 19 years (30.00% of the total area of vineyards)

**Considering that the current area of vineyards is 280 ha and that the number of grape producers is 164, and that these numbers have doubled in the last 5 years, speaks of the good development of viticulture in this area.**

Excellent geographical position, climatic factor, (soil quality, no erosion, no need for irrigation) tradition and knowledge in viticulture have contributed to this development.

**An important factor is the proximity of the capital Belgrade, so potential investors are close** and a good position for wine distribution. Such intensive growth of vineyards brings many advantages to the municipality, but if it is managed unscrupulously and irresponsibly, it can lead to some shortcomings.

Great touristic potentials and historical heritage are based on the heritage of the royal Karadjordjevic family, which from its beginnings has left a big mark in the enlightenment of the people and advanced knowledge. The Karadjordjevic family is the founder of modern viticulture because they brought knowledge from France. The great influence of the activities of the royal family is felt in the tradition and knowledge of the modern inhabitants of the municipality of Topola.

**The foundation of the Karadjordjevic family is a great tourist potential** that has been used for years, but there is still place for upgrading these potentials and the opportunities it provides.

The long tradition of wine making and agriculture for generations in the area is based on good practices that have been applied before because this area was an agricultural area with all branches of agriculture. For the last fifty years agriculture was oriented as a fruit area and then as a livestock area. This potential in a quality land and climate, but also in **the knowledge of fruit growing should be used in a good direction and increasingly take care of the environment and engage in sustainable production.**

Fruit growing should be developed in the direction of processing these products, and not only as a raw material to sell fruit. This cycle of complete production in conjunction with tourism has been developing in a good direction for several years in the municipality of Topola, but it needs to be improved more and more in small households.

Agricultural secondary school with a long tradition is a good potential for educating farmers, which is very much needed in all areas of agriculture to preserve traditional knowledge and transfer it to new interested students and potential farmers. It is necessary to **develop dual education with the producers** to organize the education of the necessary staff. There is a lack of educated staff, the school has the potential and conditions to implement all this, but it is necessary to work on educating the population and young people to understand the need in the market for these occupations in viticulture and winemaking. The school and the municipality are ready to make efforts in the coming period and to work together to promote and solve this problem because the potential is good.

The Sumadija Winegrowers Association is very influential and this year has 28 members from the municipality of Topola. Their main activity is to promote the production of wine with protected geographical origin, which is a very demanding process for producers, but from the beginning directs them to the right goal of caring for soil quality, the way of growing vines and wine production. **Good potential in the association is to implement activities in education and promotion of agri-environmental transition** in cooperation with the advisory service and experts in the advisory field. Creating cooperation with agricultural schools and winemakers to meet both sides and form the necessary educated workforce to all interested parties. This is a good potential that will be developed in the coming period, but it is necessary to develop the capacity of the association.

One of the **great potentials is the pride of the population in its history and environment**, and this local patriotism is quite developed, which allows the development of the municipality. Population migrations are mainly within the region due to job needs, and when families are economically satisfied, they have no need to relocate but remain on their land and participate in the development of the municipality very actively. Such a characteristic of the population gives the result that they want to have a quality final product in all productions, **to take care of their land to leave a healthy land for future generations.**

High sense of belonging - community pride is also a good potential in preserving tradition, transferring knowledge about good practices and the opportunity to adopt new knowledge and ways of working that would harmonize with local specifics. A good chance to achieve the ultimate goal of the municipality as a biodistrict stems from this potential, but it takes a lot of work and coordination with all stakeholders to make a better and stronger connection.

Production of high-quality wines - with international awards dates back to the period before the Second World War, but the new era of modern viticulture in Serbia begins in the municipality of Topola in 2000 in a private winery Aleksandrovic which is today one of the three most successful and famous wineries in by applying modern technology, modern equipment, educated experts, with a lot of manual work in the vineyard and reducing the yield per vine, they achieve top quality wine.

**The production process itself is according to the most modern standards and as a result, wines have been produced that have won the highest world awards.**

Such a leader in the region and, therefore, a teacher to other winegrowers and winemakers in Topola has led other producers to set high goals in quality production.

The process of receiving and processing grapes is according to **HCCP standards in all wineries**, because it is a condition to register production and **it is a good sign to produce a safe product.**

This production of quality wine, historical basis and good marketing of products have contributed to the development of wine tourism in Topola. Wine tourism has been developing intensively for the last 2 years and there is still a lot of room for improvement and development.

#### **Main weaknesses**

**Conventional production** in wine growing and agriculture currently applied in the area is the biggest

weakness of this area.

The reason for this production with most producers is that this is primarily a fruit region with a very rainy spring and warm summer with a lot of moisture, so the fear of disease is great.

**Insufficient knowledge and information** on higher value types of production (organic, biodynamic, agroecological, etc.) is also a problem of not practicing different production. The lack of different types of production is because there is not a good example that could be exemplary where the other manufacturers would learn.

**Insufficient control of production and use of chemical products.** Most of the farmers included in the analysis use a minimum of chemicals in all agricultural activities they engage in, and approach work in a very environmentally responsible manner. However, they believe that not all producers are like that, and that controls and inspections must be strengthened, but also incentives for responsible producers. In addition, official control of products, and evidence on minimal usage of chemical products, should be in correlation with the higher prices for healthy products. The difference in quality should be made without officially certified manufacturers because it is an expensive process.

One of the important weaknesses in the municipality of Topola **insufficient transparency of official data and inconsistency of official data** related to paedology, geology and climate on all other natural and agricultural characteristics of the municipality of Topola, which is 85% agricultural. These data are needed by potential new investors who obtain such data from already existing producers' winemakers. The support of the municipality and at the national level is needed to harmonize the data bases and increase their transparency.

**The great influence of phytosanitary advisers on farmers is very often in a wrong way**, with the aim of consuming expensive chemical means that will ensure their safe production and farmers have a great confidence towards them because there is insufficient knowledge. Those advisors often abuse their position to achieve greater economic income and producers do not have the opportunity to choose, so it is necessary to work on acquiring more knowledge and strengthen the capacities of the professional service.

Inconsistency of ownership status of parcels on the field and in the cadastre, especially related to parcel types and purpose (land use). This problem must be solved at the national level and we are working on it, so in the coming years we expect that it will be solved.

**Local products are not recognised as added value products** (Sumadija or Topola product marks), because there is a bad relationship between the private and public sectors and the producers themselves are fighting for their personal interests and use the Topole brand for their recognition, but the municipality has not yet verified this and given some guidelines and rules on how to achieve this and what are the norms for the territorial brand for every product. The tourist organization is trying to work on this topic, but there is still a lot to be done.

**Low level of waste management** at all levels even they are one of the few municipalities that cover all villages with waste disposal units. The municipality of Topola has a problem with inadequate disposal of waste at a landfill that is not organized and it is in a populated part of the city. There is no waste classification and adequate management of that waste, and the municipality is in the process of solving this problem. Disposing of **the packaging from chemical agents is also a problem** because there is no coordination between the producers of these agents, sellers, and consumers. It is necessary to regulate how and in what way to dispose of the packaging and who will collect it from the farmer for further recycling. The goal is to prevent accidents from happening the already existing situation that this packaging is mostly thrown into rivers.

**Marble mining on Mount Vencac**, which is in the neighboring municipality of Arandjelovac, has become excessive and uncontrolled in recent years, leading to major environmental problems and the question of the survival of the mountain itself.

Endangering the mountain by excessive ore mining has led to the collapse of the top of the mountain itself and its reduction by three meters, and there are indications that the mountain has been reduced by 10 meters in height. This permanently destroys the ecosystem in the larger environment and leads to microclimatic changes.

<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>• Good relief and climate characteristics for wine growing and agriculture (soil quality, no erosion, no need for irrigation)</li> <li>• Great touristic potentials and historical heritage (Oplenac)</li> <li>• Long tradition of wine making and agriculture for generations in the area</li> <li>• Agricultural secondary school with long tradition</li> <li>• Existing Grape and Wine growers Association</li> <li>• Wide area enabling enlargement of areas under vineyards</li> <li>• Existing standards applied (HACCP) in wine making</li> <li>• Production of high-quality wines – with international awards</li> <li>• High sense of belonging – community pride</li> </ul>	<p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>• No wine-making course in the secondary school</li> <li>• Only conventional production in wine growing and agriculture currently applied in the area</li> <li>• Lack of knowledge and information on higher value types of production (organic, biodynamic, agroecological, etc.)</li> <li>• High level of influence of phyto-advisors (salespersons) comparing to public advisory service</li> <li>• Not enough knowledge and support for agroecological production (only organic)</li> <li>• Infrastructural issues (roads, electricity, water supply)</li> <li>• Basic geological and morphometrically data for the area is not available for end users at national or local level</li> <li>• Inconsistency of ownership status of parcels on the field and in the cadastre, especially related to parcel types and purpose (land use)</li> <li>• Association of Sumadija winemakers is not interested and active on agroecology</li> <li>• No local advisory service</li> <li>• Local products are not recognised as added value products (Sumadija or Topola product marks)</li> <li>• Lack of cooperation between public and private sector</li> <li>• Low level of waste management at all levels (even they are one of the few municipalities that cover all villages with waste disposal units)</li> <li>• Burning plant residues on the fields is a big problem (lack of awareness and capacities to stop this)</li> <li>• Lack of knowledge and possibilities for organic residues recycling</li> <li>• Insufficient funding for agriculture and agroecology at local and national level</li> <li>• High presence of international grape varieties</li> <li>• Low level of control for regulation application</li> </ul>
<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Great location for potential investors in wine making – close to Belgrade, main roads, etc.</li> <li>• Vineyard terraces existing at Oplenac, within Kings vineyards</li> <li>• High-value landscapes and historical places</li> <li>• Rising interest for wine and rural tourism</li> <li>• Existence of know-how and autochthonous varieties – possibility for increasing vineyards with these varieties – in line with national strategies</li> </ul>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>• Deforestation due to personal interests – influencing micro-climate</li> <li>• Uncontrolled industrialisation and building of industrial facilities on agricultural land and near important agricultural areas</li> <li>• Dump fields</li> <li>• Foundry proximity</li> <li>• No regulation on land abandoning nor sanctions for irresponsible owners</li> <li>• Pollution</li> </ul>

### **3. OBJECTIVES OF THE ACTION PLAN ON LANDSCAPE PROTECTION**

#### **Overall goal (vision for Landscape protection):**

**“Topola is a place with unique tradition, history and natural characteristics that strive to set new standards in preserving its landmarks, products and landscapes for future generations, in the same time enabling its citizens to have good livelihood at present. Topola people, institutions and businesses cooperate and bring decisions about their hometown and its uniqueness, always creating new values and better living conditions.”**

Actors for Action plan implementation:

- Local self-government
- Agricultural producers (wine growers)
- Wine makers
- Non-profit sector organisation
- Agricultural advisory service
- Conscious and responsible individuals

#### **Objectives:**

1. Raising awareness and knowledge on the landscape preservation, including protection of the biodiversity and specific local products with added value
2. Developing specific touristic products and tours that are in line with landscape preservation, and are considering landscape as one of the main values of the area that can be protected by agroecological practices
3. Defining strategic actions and projects for landscape preservation, and preparing technical conditions for obtaining finances from national and EU funds

Objectives can be presented with more details as it reads:

#### **1. *Raising awareness and knowledge on the landscape preservation, including protection of the biodiversity and specific local products with added value***

As agroecology concept, including landscape preservation, is very new to the public and inhabitants of Topola region, the first objective is to raise awareness and educate general population, together with representatives of the major institutions that are to be included into the agroecological transition. Multi-purpose programmes will be developed under this objective, tailored in accordance with specific needs of trainees' groups. In addition, creation of added value products and biodiversity protection importance will be cross-connected with the topic.

#### **2. *Developing specific touristic products and tours that are in line with landscape preservation, and are considering landscape as one of the main values of the area that can be protected by agroecological practices***

Beautiful landscape and spatial features are one of the main characteristics of the Topola area. Still, they are not fully valorised, and some of them are endangered by different factors. Therefore, agroecological transition will create conditions and specific valorisation options for landscape and spatial features to become important part of regional touristic offer.

#### **3. *Defining strategic actions and projects for landscape preservation, and preparing technical***

***conditions for obtaining finances from national and EU funds***

Historical heritage and tradition are strongly embedded into Topola image, as well as in people's sense of prouddness. Still, some of the main features need revitalisation and protection, that can be a part of the restoration/protection projects from EU or other donor funds. The action is a basis of landscape preservation of the region.

Objective 1	1.1 Developing educational programmes on biodiversity and landscape protection	Short term
	1.2 Improving and upgrading fire prevention systems	Short term
	1.3 Developing raising awareness communication materials and control mechanisms of land abandoning prevention	Short term
	1.4 Valorisation of specific local products with added value	Mid term
	1.5 Awareness raising and advocacy activities towards protection of landscape main features that are crucial for maintenance of local microclimate and production	Mid term
	1.6 Defining protected landscapes and specific wine regions in the Municipality of Topola	Long term
Objective 2	2.1 Mapping ,protection and promotion of Topola vineyard landscapes	Short term
	2.2 Institutionalisation of Agroecological practices	Mid term
	2.3 Identification of potential ecosystem touristic offer in Topola for existing and new valuable sites and landscapes	Mid term
Objective 3	3.1 Defining programmes for handling hazardous waste from agriculture	Short term
	3.2 Revitalisation of old Oplenac vineyard terraces as unique landscape of high historical and natural value	Long term

Developing an action plan will help changemakers/decision-makers turn their visions into reality and establish a model of agroecological transition in pilot area. An action plan will describe the way how to achieve objectives through detailed action steps that describe how and when these steps will be taken.

All good practices mentioned in the action plan (under each action in the section "Potential transfer of good practices") are from the Good practices Collection – Good Practice Description and Best Practices list, which will be the reference documents to the Action plan implementation.

## 4. SHORT TERM STEPS

### 4.1. List of activities

1.1 Developing educational programmes on biodiversity and landscape protection
1.2 Improving and upgrading fire prevention systems
1.3 Developing raising awareness communication materials and control mechanisms of land abandoning prevention
2.1 Mapping ,protection and promotion of Topola vineyard landscapes.
3.1 Defining programmes for handling hazardous waste from agriculture

### 4.2. Description of each activity

<b>Name</b>	<b>1.1 Developing educational programmes on biodiversity and landscape</b>
<b>Time frame</b>	2 years
<b>Short activity description</b>	<i>Biodiversity and landscape preservation are the key topics for the future of the pilot area preservation and agroecological practices implementation. Therefore, early education, as well as education of all levels could bring these topics to the focus and make them contribute to the overall area. The secondary school teachers, together with other relevant stakeholders will develop different modules of the educational programme that could be used in formal and non-formal educational system. Once developed, this programme could be shared with other regions as good practice and can become a part of official educational curriculum. The development of educational programmes on the importance of landscape preservation will improve ecosystem services and the development of touristic potentials.</i>
<b>Responsible person/institution</b>	<i>Producer association and Secondary school, with the support of Local self-government through its LER office<sup>1</sup></i>
<b>Objectives</b>	1. Raising awareness and knowledge on the landscape preservation, including protection of the biodiversity and specific local products with added value
<b>Expected results</b>	<ul style="list-style-type: none"> <li>- Established database on local and regional biodiversity and landscape valuable features</li> <li>- Conducted informational focus groups with relevant stakeholders in order to define main milestones and curriculum parts</li> <li>- Defined target groups and training programme goals</li> <li>- Developed curriculum with detailed programmes for different</li> </ul>

<sup>1</sup> Local Economic Development office – The office in the Municipality/local self-government in charge of economic and development projects – preparation, implementation, etc. They are also in charge of development plans and strategies – coordinating the processes of definition as well as of implementation

	<p>trainee groups</p> <ul style="list-style-type: none"> <li>- Established Trainers' team and conducted ToT<sup>2</sup></li> <li>- Conducted pilot training</li> <li>- Collected feedback from the pilot training</li> <li>- Adjusted training programme in accordance with the collected feedback</li> <li>- Training programme established as continuous programme for students, producers, tourist workers/households, etc.</li> <li>- Training programme promoted to the wider audience and to other regions interested in such activity</li> </ul>
<b>Indicators</b>	<ul style="list-style-type: none"> <li>- Amount of collected information on biodiversity and landscape features of the local and regional surrounding of the Municipality of Topola</li> <li>- Number of participants at focus group discussion, with special attention to the main stakeholders relevant for curriculum development</li> <li>- Competencies and fields of interest of the training team members (expertise and knowledge base)</li> <li>- Curriculum developed for the training – focusing on biodiversity and landscape characteristics and their preservation on the local and regional level</li> <li>- Number of trainees present at the pilot training</li> <li>- Number of feedbacks received at the end of pilot training</li> <li>- Qualitative update of the curriculum in accordance with the received feedback from the pilot training</li> <li>- Number of media promotion of the training programme</li> <li>- Number of trainees applied and attended the training</li> </ul>
<b>Key stakeholders/partners involved</b>	<p>Producer Association/s Individual producers Secondary school students NVOs Municipality of Topola (LER) Touristic organisation</p>
<b>Connectivity to other activities</b>	1.3; 2.1;
<b>Potential resources</b>	<p>Local self-government funds for educational programmes (NGO project financing funds) Secondary school projects for adult education (Erasmus etc); Producer association mobilizing their members and communities to take active participation EU funds</p>
<b>Potential transfer of good practices</b>	<p>1. Agroforestry 2. Biodistrict 3. Biodiversity friend 7. Dry stone walls 10. HNV<sup>3</sup> 13. Landscapital Board game 17. Participatory land maintenance systems; land stewardship</p>

<sup>2</sup> ToT – training of trainers

<sup>3</sup> High Natural Value farmland <https://www.eea.europa.eu/data-and-maps/data/high-nature-value-farmland-1>

	24. Wine routes 25. Wood poles 27. Erosion prevention
<b>Potential risks and obstacles</b>	<i>Low level of prioritization of training programmes for adults (informal training programmes) creation at municipal level and project funding priorities from local budget (Municipality of Topola)</i> <i>Lack of interest of target groups of trainees for the programme</i> <i>Not enough knowledge on these topics at the local and regional level (needed external trainers for organizing and their training)</i>
<b>On which level the activity will be implemented (local/regional/national/) and which kind of document</b>	Local and regional level National Plan for Rural Development 2022-2024 Strategy for agriculture and rural development of the Municipality of Topola 2017-2027 Development Plan of the Municipality of Topola 2021-2031 Adult learning programmes

<b>Name</b>	<b>1.2 Improving and upgrading fire prevention systems</b>
<b>Time frame</b>	2-3 years
<b>Short activity description</b>	<p><i>Currently, there is a significant problem of wildfires, and fires initiated by the reckless weeds burning. It refers to both things, in terms of regulations and human resources (educational programmes on fire damages / burning green and wood mass in the fields, increasing capacities and number of inspection officers – official controls, etc.)</i></p> <p><i>The overall action needs to tackle and improve all aspects that are crucial for building reliable fire prevention system - knowledge, awareness, regulatory framework and resources. This activity will include all aspects of the system improvement.</i></p>
<b>Responsible person/institution</b>	Local self-government through its LER office and advisory service; support of Producer association and local communities and secondary school professors
<b>Objectives</b>	1. Raising awareness and knowledge on the landscape preservation, including protection of the biodiversity and specific local products with added value
<b>Expected results</b>	<ul style="list-style-type: none"> <li>- <i>Developed educational material on why fire/burning the green material on the field is very damaging for the soil and its characteristics</i></li> <li>- <i>Developed local and regional regulatory documents on preventing and stopping fires and burning of the green materials on the fields</i></li> <li>- <i>Designed and implemented promotional campaign on fire damage for biodiversity and landscape protection</i></li> <li>- <i>Reduced number of intentional fire starting/burning green/dry material on the fields</i></li> <li>- <i>Developed local pilot programme for raising awareness on these topics</i></li> <li>- <i>Performed assessment of the pilot programme results and defined lessons learned</i></li> <li>- <i>Shared results of the programme at local, regional and national level</i></li> </ul>
<b>Indicators</b>	<ul style="list-style-type: none"> <li>- <i>Number of regulations defined at the local/regional level</i></li> </ul>

	<p><i>regarding fires in the fields (started by men)</i></p> <ul style="list-style-type: none"> <li>- <i>Defined awareness rising programmes in line with the assessed situation and need for landscape and biodiversity protection</i></li> <li>- <i>Reduced number of intentional fire starting/burning green/dry material on the fields</i></li> <li>- <i>Number of good practices and success stories collected</i></li> </ul>
<b>Key stakeholders/partners involved</b>	<p><i>Municipality of Topola (LER)</i>  <i>Producer Association/s</i>  <i>Individual producers</i>  <i>Communities (city and villages)</i>  <i>Secondary school students</i>  <i>NVOs</i>  <i>External researchers and projects</i></p>
<b>Connectivity to other activities</b>	<i>1.1; 2.1;</i>
<b>Potential resources</b>	<p><i>Local self-government funds for citizen participation and community development projects</i>  <i>Producer association mobilizing their members and communities to take active participation in the process</i>  <i>EU Projects for supporting nature protection</i></p>
<b>Potential transfer of good practices</b>	<p><i>3. Biodiversity friend</i>  <i>10. HNV</i>  <i>11. Weed mechanical management</i>  <i>17. Participatory land maintenance systems; land stewardship</i>  <i>19. Pyro weeding</i>  <i>22. Social learning and knowledge generation</i></p>
<b>Potential risks and obstacles</b>	<p><i>Low level of prioritization of landscape and biodiversity protection at local/regional level</i>  <i>Low level of information sharing on the actions and community participation importance</i>  <i>Low level of transparency during regulatory definition process</i>  <i>Low level of facilitation of this processes</i></p>
<b>On which level the activity will be implemented (local/regional/national/) and which kind of document</b>	<p><i>Local and regional level</i>  <i>National Plan for Rural Development 2022-2024</i>  <i>Strategy for agriculture and rural development of the Municipality of Topola 2017-2027</i>  <i>Development Plan of the Municipality of Topola 2021-2031</i>  <i>Law on planning systems (obligatory public participation)</i></p>

<b>Name</b>	<b><i>1.3 Developing raising awareness communication materials and control mechanisms of land abandoning prevention</i></b>
<b>Time frame</b>	<i>2 years</i>
<b>Short activity description</b>	<p><i>Land abandoning is not only the problem of villages and people owning that land. It is an issue of the generations to come who have to think in time about this valuable resource. awareness rising programmes and control mechanisms will be developed under this activity in order to raise awareness of landscape preservation and reduction of land abandonment. The importance of land and its preservation, as well as landscape will be embedded in different modules for categories from</i></p>

	<i>kindergarten to professional land usage inspectors. Specific “land offering market” would be initiated, having the Association as the owner of this market, where people who do not want to work and arable land can come and offer that land to the interested parties.</i>
<b>Responsible person/institution</b>	<i>Producer association and Secondary school, with the support of Local self-government through its LER office</i>
<b>Objectives</b>	1. Raising awareness and knowledge on the landscape preservation, including protection of the biodiversity and specific local products with added value
<b>Expected results</b>	<ul style="list-style-type: none"> <li>- <i>Established database on abandoned land in the Municipality of Topola</i></li> <li>- <i>Established online interactive marketplace tool for offering land that will serve to the overall campaign against land abandoning</i></li> <li>- <i>Defined awareness raising programme, targeting different actors of land abandonment problem, focusing also to land and landscape preservation importance</i></li> <li>- <i>Designed control mechanisms for preventing land abandonment at local and regional level</i></li> <li>- <i>Awareness raising programme promoted to the wider audience and to other regions interested in this important land protection process</i></li> </ul>
<b>Indicators</b>	<ul style="list-style-type: none"> <li>- <i>% of registered land and abandoned parcels at the territory of the Municipality of Topola</i></li> <li>- <i>Defined higher standards regulations that influence reduction of the abandonment</i></li> <li>- <i>Detailed awareness raising programme developed</i></li> <li>- <i>Number of participants that took part in the land registration (real data collection – field based)</i></li> <li>- <i>Number of local regulations adopted</i></li> <li>- <i>Campaign reach results</i></li> <li>- <i>Feedbacks collected and received during and at the end of the campaign</i></li> <li>- <i>Number of media promotion of the awareness raising campaign</i></li> <li>-</li> </ul>
<b>Key stakeholders/partners involved</b>	<i>Producer Association/s Individual producers Municipality of Topola (LER) Touristic organization National institutions (Agricultural Land Directorate) Secondary school students NVOs</i>
<b>Connectivity to other activities</b>	<i>1.1; 1.2;</i>
<b>Potential resources</b>	<i>Local self-government funds for advocacy and environment protection programmes (NGO project financing funds) Secondary school projects for adult education and awareness rising (Erasmus etc.); Producer association mobilizing their members and communities to take active participation EU funds</i>

<b>Potential transfer of good practices</b>	3. Biodiversity friend 10. HNV 11. Weed mechanical management 17. Participatory land maintenance systems; land stewardship 19. Pyro weeding 22. Social learning and knowledge generation
<b>Potential risks and obstacles</b>	<i>Low level of prioritization of awareness raising programmes for environmental protection (including land); creation at municipal level and project funding priorities from local budget (Municipality of Topola) Lack of interest of target groups – land owners and potential land users Not enough knowledge on these topics at the local and regional level (needed external experts for defining the campaign)</i>
<b>On which level the activity will be implemented (local/regional/national/) and which kind of document</b>	Local and regional level National Plan for Rural Development 2022-2024 Strategy for agriculture and rural development of the Municipality of Topola 2017-2027 Development Plan of the Municipality of Topola 2021-2031 Adult learning programmes

<b>Name</b>	<b>2.1 Mapping ,protection and promotion of Topola vineyard landscapes</b>
<b>Time frame</b>	2-3 years
<b>Short activity description</b>	<i>Topola vineyard landscapes are part of the historical heritage of the Oplenac and the country. Valorisation of the vineyard landscapes of Topola can be done through definition of specific touristic products. This will be done by facilitating the participatory process in order to define specific touristic product that would be based on revival and preservation of the landscapes and heritage of the area.</i>
<b>Responsible person/institution</b>	<i>Local self-government through its LER office and other relevant stakeholders with support of Producer association and local NGOs</i>
<b>Objectives</b>	2. Developing specific touristic products and tours that are in line with landscape preservation, and are considering landscape as one of the main values of the area that can be protected by agroecological practices
<b>Expected results</b>	<ul style="list-style-type: none"> <li>- Conducted focus group discussions on the landscape heritage of the area – focusing on Topola vineyard landscapes (Oplenac terraces etc.) with relevant stakeholders</li> <li>- Assessed conditions and defined plan to revitalise the Oplenac/Topola terraces – landscapes to be protected</li> <li>- Defined values of the heritage and used for developing consultative process for defining new and innovative touristic products of the area</li> <li>- Designed and conducted call for ideas (competition) on the new touristic product of the region (based on the heritage and landscape)</li> <li>- Developed map with landmarks, landscape features and touristic products</li> <li>- Installed high-quality tourist signalization for all mapped tourist locations</li> <li>- Protected and improved vineyard area which connects several places Oplenac - Bor - Ježevac - Lipovac - Karaula - Zmajevac as</li> </ul>

	<p><i>a special tourist and vineyard location with numerous ecosystem services</i></p> <ul style="list-style-type: none"> <li>- <i>Promoted new touristic products at local, regional and national level</i></li> <li>- <i>Tourist locations are accessible to everyone due to the new infrastructure and easy access paths</i></li> </ul>
<b>Indicators</b>	<ul style="list-style-type: none"> <li>- <i>Number of participants from main stakeholder groups at focus group discussions</i></li> <li>- <i>Number and quality of information collected and entered into the database (on typical landscapes of the Municipality of Topola, focusing on vineyard landscapes and terraces that are characteristic for the area)</i></li> <li>- <i>Call for competitors for new and innovative touristic products, based on the tradition and historical landscape heritage of the area</i></li> <li>- <i>Number of participants at the competition for new/innovative touristic product</i></li> <li>- <i>Number of products in line with the competition call</i></li> <li>- <i>Level of details on the Map of landscape landmarks and vineyard characteristic points, together with touristic points and places to visit</i></li> <li>- <i>Number of tourists visiting the area and using the newly developed map for their exploration of the Topola municipality and the region</i></li> <li>- <i>Number of promotional campaign hits and posts on social media</i></li> <li>- <i>Number of easy access paths established</i></li> </ul>
<b>Key stakeholders/partners involved</b>	<p><i>Municipality of Topola (LER)</i>  <i>Touristic organisation</i>  <i>Producer Association/s</i>  <i>Individual producers</i>  <i>Communities (city and villages)</i>  <i>Secondary school students</i>  <i>NGOs</i>  <i>Business community</i>  <i>Touristic entities (rural and general)</i></p>
<b>Connectivity to other activities</b>	<i>1.1; 1.2; 1.3</i>
<b>Potential resources</b>	<p><i>Local self-government funds for citizen participation and community development projects</i>  <i>Secondary school students and/or volunteers developing database and open data system (project writing);</i>  <i>Producer association mobilizing their members and communities to take active participation in the survey and map development</i></p>
<b>Potential transfer of good practices</b>	<p><i>3. Biodiversity friend</i>  <i>10. HNV</i>  <i>17. Participatory land maintenance systems; land stewardship</i>  <i>22. Social learning and knowledge generation</i>  <i>24. Wine routes</i></p>
<b>Potential risks and obstacles</b>	<i>Low level of interest in the idea due to the lack of knowledge on historical heritage of Oplenac terraces</i>

	<p><i>High level of interest of different external investors for buying properties and change their original purpose (protection of the landscapes possible through legal protection as a national heritage)</i></p> <p><i>Low level of connectedness between vineyard owners and touristic organization/workers</i></p> <p><i>Conflict of interest with regional and national authorities</i></p>
<b>On which level the activity will be implemented (local/regional/national/) and which kind of document</b>	<p>Local and regional level</p> <p>National Plan for Rural Development 2022-2024</p> <p>Strategy for agriculture and rural development of the Municipality of Topola 2017-2027</p> <p>Development Plan of the Municipality of Topola 2021-2031</p> <p>Law on planning systems (obligatory public participation)</p> <p>Landscape protection regulations at national and EU level</p>

<b>Name</b>	<b>3.1 Defining programmes for handling hazardous waste from agriculture</b>
<b>Time frame</b>	2 years
<b>Short activity description</b>	<p><i>Currently, there are no, or very limited capacities for handling hazardous waste from agriculture, such as herbicides and pesticides packaging and residues from spraying/treatments (washing sprayers, leftovers after treatments, etc.). Current handling is limited to voluntary collection of packaging (for example) by some production companies, or individual investments in residue basins or separate special disposal areas.</i></p> <p><i>This activity is directed towards development of systemic solutions and programme for handling these hazardous products. Definition of local waste management plan (or regional landfill management plan) should have a specific part for handling hazardous management that will be developed in cooperation with local users and companies that are already piloting different solutions. In addition to this plan, specific promotional campaign should be established, targeting users of these products, as well as the wider population.</i></p>
<b>Responsible person/institution</b>	<i>Local self-government through its LER office in cooperation with Regional Landfill Kragujevac (company/planners), in consultations with the Producer association</i>
<b>Objectives</b>	3. Defining strategic actions and projects for landscape preservation, and preparing technical conditions for obtaining finances from national and EU funds
<b>Expected results</b>	<ul style="list-style-type: none"> <li>- <i>Conducted informational focus groups with relevant stakeholders in order to define main problems and potential solutions regarding managing hazardous agriculture products and residues</i></li> <li>- <i>Defined needs and proposed solutions communicated with relevant institutions</i></li> <li>- <i>Defined and adopted local policy on regulating hazardous agriculture materials/packaging/residues, based on the assessed needs and possible solutions</i></li> <li>- <i>Defined local/regional programmes for hazardous product management – multi-sectorial solutions with clear action plan for its implementation</i></li> <li>- <i>Defined promotional campaign, targeting agriculture producers (grape growers and others) and wider population</i></li> </ul>
<b>Indicators</b>	<ul style="list-style-type: none"> <li>- <i>Number of relevant parties involved in the informational focus groups for assessing problems and defining solutions for managing</i></li> </ul>

	<p><i>hazardous agricultural material.</i></p> <ul style="list-style-type: none"> <li>- <i>Campaign programme developed and number of interactions with the targeted audience (means of communication and number of interactions)</i></li> <li>- <i>Number of feedbacks received during the campaign</i></li> <li>- <i>Number of media promotions</i></li> </ul>
<b>Key stakeholders/partners involved</b>	<p><i>Municipality of Topola (LER)</i>  <i>Producer Association/s</i>  <i>Individual producers</i>  <i>Secondary school students</i>  <i>NVOs</i></p>
<b>Connectivity to other activities</b>	<p><i>1.1; 1.2 and 2.1;</i></p>
<b>Potential resources</b>	<p><i>Local self-government funds for educational programmes (NGO project financing funds)</i>  <i>EU funds</i>  <i>Producer association mobilizing their members and communities to take active participation</i></p>
<b>Potential transfer of good practices</b>	<p>1. Agroforestry  2. Biodistrict  3. Biodiversity friend  10. HNV<sup>4</sup>  13. Lands capital board game  17. Participatory land maintenance systems; land stewardship  24. Wine routes  27. Erosion prevention</p>
<b>Potential risks and obstacles</b>	<p><i>Low level of prioritization of awareness raising campaigns and waste management programmes/ finalised preparatory activities for the Regional landfill establishment</i>  <i>Low level of negotiation capital at the municipal level (to negotiate inclusion of this important topic at the regional level)</i>  <i>Lack of interest of target groups</i>  <i>Insufficient knowledge on these topics at the local and regional level (needed external consultants engagement – costly or through programmes)</i></p>
<b>On which level the activity will be implemented (local/regional/national/) and which kind of document</b>	<p>Local and regional level  National Plan for Rural Development 2022-2024  Strategy for agriculture and rural development of the Municipality of Topola 2017-2027  Development Plan of the Municipality of Topola 2021-2031  Regional waste management plan</p>

<sup>4</sup> High Natural Value farmland <https://www.eea.europa.eu/data-and-maps/data/high-nature-value-farmland-1>

## 5. MEDIUM TERM STEPS

### 5.1. List of activities

1.4 Valorisation of specific local products with added value
1.5 Awareness raising and advocacy activities towards protection of landscape main features that are crucial for maintenance of local microclimate and production
2.2 Institutionalisation of Agroecological practices
2.3 Identification of potential ecosystem touristic offer in Topola for existing and new valuable sites and landscapes

### 5.2. Description of each activity

<b>Name</b>	<b>1.4 Valorisation of specific local products with added value</b>
<b>Time frame</b>	3-4 years
<b>Short activity description</b>	<i>The area of Topola has many specific products that are not yet valorised to the full extent. The wines have made a big steps towards the valorisation, but other products still need to. This activity will be focusing on recognition and valorisation of these products, through development of certification processes and special attention on sustainable usage of the resources and landscapes defining regional label that will be an umbrella for valorisation of the products characteristic for this area. Formation of a body (association, LAG or other) for leading and owning this process will be the first step, while the participatory guarantee system and definition of specifications of products to be labelled will be the collective effort. The regional label will be using other good practices and experiences along the process.</i>
<b>Responsible person/institution</b>	<i>Local self-government through its LER office and support of Producer association and high-education institutions/researchers' community</i>
<b>Objectives</b>	1. Raising awareness and knowledge on the landscape preservation, including protection of the biodiversity and specific local products with added value
<b>Expected results</b>	<ul style="list-style-type: none"> <li>- <i>Created list of potential products that can be protected through locally/regionally owned trademark</i></li> <li>- <i>Conducted round of consultations on the potential content for the participatory guaranty process for local/regional trademark definition</i></li> <li>- <i>Defined main points for future brand/trademark and prepared application for registration at Intellectual property office (IPO)</i></li> <li>- <i>Formed committee for managing the trademark participatory control (association or other form)</i></li> <li>- <i>Application submitted to the IPO<sup>5</sup></i></li> <li>- <i>Developed procedures for internal controls and certification</i></li> </ul>

<sup>5</sup> IPO – Intellectual property office – currently in charge of the products with geographical indication, and of regional labels (like possible future Topola regional label)

	<p><i>(participatory guarantee system)</i></p> <ul style="list-style-type: none"> <li>- <i>First local products started to use the logo and the trademark, respecting the CoP (Code of Practice) while labelling their products</i></li> <li>- <i>Received feedback from the first users of the local/regional trademark</i></li> </ul>
<b>Indicators</b>	<ul style="list-style-type: none"> <li>- <i>Reports from the consultation process</i></li> <li>- <i>Number of people present at the consultation meetings/workshops</i></li> <li>- <i>Composition of committee – all relevant stakeholders are represented</i></li> <li>- <i>Approved Code of Practice (CoP) for the Topola brand (trademark) by IPO</i></li> <li>- <i>Rulebooks and procedures for the Internal control functioning applied and respected</i></li> <li>- <i>First labelled products on the market/in touristic households/touristic offer of the Municipality of Topola</i></li> <li>- <i>Number of products labelled as Topola origin in line with sustainable production and landscape protection</i></li> <li>- <i>Visual identity material for the products (design and number of material prepared)</i></li> </ul>
<b>Key stakeholders/partners involved</b>	<p><i>Municipality of Topola (LER)</i>  <i>Producer Association/s</i>  <i>Touristic office</i>  <i>Touristic workers and rural touristic households</i>  <i>Secondary school students</i>  <i>NVOs</i></p>
<b>Connectivity to other activities</b>	<p><i>2.1; 2.3</i></p>
<b>Potential resources</b>	<p><i>Local self-government funds for LSG promotion; International projects (researching and practice connection – knowledge and research transfer and application)</i>  <i>Producer association mobilizing their members and communities to define products for adding value through labeling with regional trademark</i></p>
<b>Potential transfer of good practices</b>	<p>16. Participatory guarantee  17. Participatory land maintenance  21. Resistant grape varieties  22. Social learning and knowledge generation  24. Wine routes</p>
<b>Potential risks and obstacles</b>	<p><i>Insufficient knowledge on participatory guarantee systems</i>  <i>Low level of interest in defining regional trademark (individual interest above common interest)</i>  <i>Low level of awareness about added value products and their usage in touristic offer in the municipality/ regional level</i>  <i>Insufficient capacities for internal control organization (within the newly formed association)</i></p>
<b>On which level the activity will be implemented (local/regional/national/) and which kind of</b>	<p>Local, regional, national (international) level  National Plan for Rural Development 2022-2024  Strategy for agriculture and rural development of the Municipality of Topola 2017-2027  Development Plan of the Municipality of Topola 2021-2031</p>

<b>document</b>	Law on quality added products (IPO and Ministry of Agriculture, Forestry and Water Management
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<b>Name</b>	<b>1.5 Awareness raising and advocacy activities towards protection of landscape main features that are crucial for maintenance of local microclimate and production</b>
<b>Time frame</b>	3-4 years
<b>Short activity description</b>	<p><i>The area of Topola is well known for its specific microclimate which is favourable for grape and fruit production. Its landscape features are protecting the area from different negative influences of wind and cold air. One of the main protections from the west is Vencac mountain, also known for famous Vencac marble – stone with high international value and reputation.</i></p> <p><i>In recent years, the stone is intensively exploited, and parts of the mountain are already gone. This influences local microclimate very much, especially grape growing in the area formerly protected by the mountain. Therefore, producers and citizens would like to prevent further vanishing of this mountain.</i></p> <p><i>The activity is directed towards collecting data on microclimate changes happening in recent years and using this data to define awareness rising and advocacy campaign directed towards institutions in charge of spatial planning, stone exploitation and grape/fruit production. This campaign should be led by local self-government and producer associations.</i></p> <p><i>In parallel local self-government will define landscape protection regulation at local level in order to protect this and other main landscape features in the area.</i></p>
<b>Responsible person/institution</b>	<i>Local self-government through its LER office and support of Producer association and high-education institutions/researchers' community and environmental NGOs</i>
<b>Objectives</b>	1. Raising awareness and knowledge on the landscape preservation, including protection of the biodiversity and specific local products with added value
<b>Expected results</b>	<ul style="list-style-type: none"> <li>- <i>Created overview of microclimate changes based on data collected in local vineyards and orchards</i></li> <li>- <i>Prepared analysis how these changes are currently influencing grape and fruit production in the area, as well as local nature and biodiversity, together with possible future scenarios if this derogation continues</i></li> <li>- <i>Conducted round of consultations on the conclusion from the analysis and adaptation with relevant stakeholders at local and regional level</i></li> <li>- <i>Prepared and adopted local regulation for landscape protection based on prepared analysis of collected data</i></li> <li>- <i>Defined campaign and formed delegation for meeting with different relevant institutions</i></li> <li>- <i>Defined mitigating strategies and strategies for protecting local production</i></li> </ul>
<b>Indicators</b>	<ul style="list-style-type: none"> <li>- <i>Data collected and analysed</i></li> <li>- <i>Reports from the consultation process</i></li> <li>- <i>Number of people participating in consultation process, especially from the relevant institutions/organisations</i></li> </ul>

	<ul style="list-style-type: none"> <li>- Composition of working group/delegation</li> <li>- Local policy for landscape protection</li> <li>- Number of media appearances and social media posts through the campaign</li> <li>- Number of meetings with relevant institutions and minutes from the meetings</li> <li>- Joint conclusion from the meetings</li> <li>- Defined mitigating strategies and prepared action plans for their implementation</li> </ul>
<b>Key stakeholders/partners involved</b>	Municipality of Topola (LER) Producer Association/s Research community NVOs
<b>Connectivity to other activities</b>	2.1; 2.3
<b>Potential resources</b>	Local self-government funds for LSG promotion; International projects (researching and practice connection – knowledge and research transfer and application) Producer association mobilizing their members and communities to collect data on changed microclimate and its influence on production
<b>Potential transfer of good practices</b>	1. Agroforestry 2. Biodistrict 3. Biodiversity friend 10. HNV 13. Lands capital board game 17. Participatory land maintenance systems; land stewardship 24. Wine routes 27. Erosion prevention
<b>Potential risks and obstacles</b>	Low level of interest of national and regional institutions for this topic Obtained licences for stone exploitation and their duration Not considering landscape specific features in future spatial planning
<b>On which level the activity will be implemented (local/regional/national/) and which kind of document</b>	Local, regional, national (international) level National Plan for Rural Development 2022-2024 Strategy for agriculture and rural development of the Municipality of Topola 2017-2027 Development Plan of the Municipality of Topola 2021-2031 Spatial plan of the Republic of Serbia

<b>Name</b>	<b>2.2 Institutionalization of Agroecological practices</b>
<b>Time frame</b>	4 - 5 years
<b>Short activity description</b>	<p>Holistic approach in spatial planning is a relatively new trend. Serbian planning documents are very often reacting to the changes, and not providing ideas and solutions for sustainable development. Agroecology and landscape protection is not new to them, but often these important principles are not prioritised. Through training and interactive processes of this activity, all interested stakeholders will be able to influence the future spatial plans and other planning documents in order to preserve and maintain valuable landscape of the Topola municipality. Interdisciplinary teams will also contribute to protection of biodiversity and sustainable touristic potentials.</p>

<b>Responsible person/institution</b>	<i>Local self-government through its LER office and Spatial planning department and support of Producer association</i>
<b>Objectives</b>	2. Developing specific touristic products and tours that are in line with landscape preservation, and are considering landscape as one of the main values of the area that can be protected by agroecological practices
<b>Expected results</b>	<ul style="list-style-type: none"> <li>- <i>Defined spatial characteristics of the Topola Municipality to be taken into consideration for future planning processes</i></li> <li>- <i>Defined agroecological postulates to be respected in spatial planning and development plans</i></li> <li>- <i>Adopted procedures of participatory spatial planning with specific attention to landscape preservation and agroecological practices</i></li> <li>- <i>Trained urban and spatial planners for this type of planning</i></li> <li>- <i>Developed cooperation with similar areas in order to exchange experiences and knowledge on spatial planning in line with landscape preservation and agroecological practices</i></li> <li>- <i>Spatial characteristics taken into account in developing village detailed plans (levels of spatial plans foreseen for village planning)</i></li> </ul>
<b>Indicators</b>	<ul style="list-style-type: none"> <li>- <i>Report on the spatial characteristics and agroecological potentials to be used in planning in the municipality of Topola</i></li> <li>- <i>Participatory spatial planning processes applied</i></li> <li>- <i>Number of trained urban and spatial planners about agroecological principles and landscape preservation (Topola Municipality specific)</i></li> <li>- <i>Spatial plan of the Topola Municipality with agroecological principles incorporated</i></li> </ul>
<b>Key stakeholders/partners involved</b>	<i>Municipality of Topola (LER)</i> <i>Urban and spatial planning office</i> <i>Producer Association/s</i> <i>Secondary school students</i> <i>NVOs</i> <i>National institutions for spatial planning</i>
<b>Connectivity to other activities</b>	/
<b>Potential resources</b>	<i>Local self-government funds for LSG spatial planning;</i> <i>National institutions and funds for municipality development in line with ecological standards</i> <i>Producer association</i>
<b>Potential transfer of good practices</b>	17. Participatory land maintenance systems; land stewardship
<b>Potential risks and obstacles</b>	<i>Low level of awareness on interconnectedness between spatial planning, landscape preservation and agroecological principles application at spatial and urban planning level</i> <i>Demanding process of coordination between different levels of governance and institutional responsibilities at local level in regard to spatial planning</i>
<b>On which level the activity will be</b>	Local, regional, national (international) level National Plan for Rural Development 2022-2024

<b>implemented (local/regional/national/) and which kind of document</b>	Strategy for agriculture and rural development of the Municipality of Topola 2017-2027 Development Plan of the Municipality of Topola 2021-2031 Spatial planning procedures at national level
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<b>Name</b>	<b>2.3 Identification of potential ecosystem touristic offer in Topola for existing and new valuable sites and landscapes</b>
<b>Time frame</b>	5 - 6 years
<b>Short activity description</b>	<i>Working with relevant institutions and stakeholders to identify and evaluate eco-systems services to be used as a base for touristic offer which will be integrated with existing ecosystems and will support their preservation in Topola municipality ( Touristic offer integrated as eco-touristic, e.g. viewpoints, establishing bike and walking paths in line with landscape preservation, marking and touristic valorisation of religious objects, regulation and landscape preservation of Jasenica river banks and river bed, climate adaptation in agricultural landscapes, etc.)</i>
<b>Responsible person/institution</b>	<i>Local self-government through its LER office and Spatial planning department and support of Producer association</i>
<b>Objectives</b>	2. Developing specific touristic products and tours that are in line with landscape preservation, and are considering landscape as one of the main values of the area that can be protected by agroecological practices
<b>Expected results</b>	<ul style="list-style-type: none"> <li>- <i>Identification of ecosystem services in Topola for creating the basis for developing ecotouristic offer (further valorisation of existing and new valuable sites and landscape characteristics in line with ecosystem preservation)</i></li> <li>- <i>Developed map of important viewpoints religious objects, established bike and walking paths in line with landscape preservation</i></li> <li>- <i>Touristic valorisation of existing natural and historical landmarks done</i></li> <li>- <i>Jasenica river bank and river bed preserved and promoted as one of the main landscape features in the area</i></li> </ul>
<b>Indicators</b>	<ul style="list-style-type: none"> <li>- <i>Ecosystem Services identified and operationalised in policies of the Topola municipality (to enable good governance and prevent disruptions)</i></li> <li>- <i>Interactive map developed and used for the individual and group tours</i></li> <li>- <i>Additional income and value created for local inhabitants and touristic workers/households</i></li> <li>- <i>Jasenica riverbank protected and valorized as very valuable landscape feature preserved, with special status in the landscape of Topola Municipality</i></li> </ul>
<b>Key stakeholders/partners involved</b>	<i>Municipality of Topola (LER) Producer Association/s Touristic organisation NVOs Touristic workers/rural touristic households</i>
<b>Connectivity to other activities</b>	1.1; 2.1
<b>Potential resources</b>	<i>Local self-government funds for LSG promotion; National resources for</i>

	<i>improvement of touristic offer</i> <i>National and international funds for nature protection</i> <i>Eco-system service creation funds (IUCN, etc.)</i> <i>Producer association mobilizing</i>
<b>Potential transfer of good practices</b>	2.Biodistrict 17. Participatory land maintenance systems; land stewardship 22. Social learning and knowledge generation 24. Wine routes 26. Strategies for communication agroecology products (wines from resistant varieties)
<b>Potential risks and obstacles</b>	<i>Low level of prioritization of eco-system services for LSG / not recognizing the potential</i> <i>Low level of promotion and interest for these services and their benefits for the local communities and citizens</i> <i>Private capital inflow – not respecting local landscape and cultural/historical heritage</i>
<b>On which level the activity will be implemented (local/regional/national/) and which kind of document</b>	Local, regional, national (international) level National Plan for Rural Development 2022-2024 Strategy for agriculture and rural development of the Municipality of Topola 2017-2027 Development Plan of the Municipality of Topola 2021-2031 Touristic development Strategy IUCN documents and recommendations

## 6. LONG TERM STEPS

### 6.1. List of activities

1.6 Defining protected landscapes and specific wine regions in the Municipality of Topola
1.7
3.1 Revitalisation of old Oplenac vineyard terraces as unique landscape of high historical and natural value

### 6.2. Description of each activity

<b>Name</b>	<b>1.5 Definition of landscape characteristics that are specific and to be used for definition of wine regions in the Municipality of Topola</b>
<b>Time frame</b>	7-9 years
<b>Short activity description</b>	<i>Specific landscape of the municipality of Topola is one of the main characteristics of the wine growing area, enabling production of high quality wines. In order to ensure preservation of this important component, as well as to support further development of the area (including grape growing and wine making), this activity is directed towards detailed definition of landscape characteristics, their official recognition as area features to be protected and used in any future</i>

	<i>spatial planning and/or definition of the wine growing regions. This is a policy/regulation development activity – In order to achieve long term objective/vision for landscape protection in the Topola municipality.</i>
<b>Responsible person/institution</b>	<i>Local self-government through its LER office and support of Producer association; highly active NGOs</i>
<b>Objectives</b>	1. Raising awareness and knowledge on the landscape preservation, including protection of the biodiversity and specific local products with added value
<b>Expected results</b>	<ul style="list-style-type: none"> <li>- <i>Defined landscape characteristics of the specific wine regions in the Municipality of Topola, taking into account the agroecological transition process conducted</i></li> <li>- <i>Promotional campaign on regionalization importance developed and implemented</i></li> <li>- <i>Shared knowledge and experience with other similar regions and defined joint lessons learned</i></li> <li>- <i>Defined and adopted specific regulations at local, regional and national level in regard to regionalization and landscape protection of Topola region (municipality)</i></li> </ul>
<b>Indicators</b>	<ul style="list-style-type: none"> <li>- <i>Defined regions are determined in interactive and participatory process, with application of full transparency for local communities and businesses</i></li> <li>- <i>Promotional campaign brought understanding of the need and the benefits of the regionalization</i></li> <li>- <i>Regulations adopted at local, regional and national level – defining regions and protected landscapes</i></li> </ul>
<b>Key stakeholders/partners involved</b>	<p><i>Municipality of Topola (LER)</i>  <i>Producer Association/s</i>  <i>Communities/future LAG</i>  <i>NGOs</i>  <i>National institutions (Ministry of Agriculture, Spatial planning, etc.)</i></p>
<b>Connectivity to other activities</b>	<i>1.1; 1.2</i>
<b>Potential resources</b>	<p><i>Local self-government funds, projects, Producer association mobilizing their members to take active participation in this activity</i>  <i>EU funds for participatory processes and democratization of the citizen led decision making</i></p>
<b>Potential transfer of good practices</b>	<p>2. Biodistrict  17. Participatory land maintenance systems; land stewardship  22. Social learning and knowledge generation</p>
<b>Potential risks and obstacles</b>	<p><i>High level of resistance to the regionalization due to low level of information shared</i>  <i>Not sufficiently transparent process of region definition bringing insecurity and resistance</i>  <i>Investors led urban planning</i>  <i>Long process can cause lack of interest, if not conducted in interactive and transparent way</i></p>
<b>On which level the activity will be implemented (local/regional/national/) and which kind of</b>	<p>Local and regional level  National Plan for Rural Development 2022-2024  Strategy for agriculture and rural development of the Municipality of Topola 2017-2027  Development Plan of the Municipality of Topola 2021-2031</p>

<b>document</b>	Law on planning (including participatory citizen led decision making processes)
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<b>Name</b>	<b><i>3.1 Revitalisation of old Oplenac vineyard terraces as unique landscape of high historical and natural value</i></b>
<b>Time frame</b>	<i>7 - 9 years</i>
<b>Short activity description</b>	<i>One of the most valuable vineyard landscape features are Oplenac terraces at Royal vinery. This long-term activity aims to contribute to their revival and creation of special programmes for their valorisation, both as production, but more important as national heritage site.</i>
<b>Responsible person/institution</b>	<i>Local self-government through its LER office and support of Producer association; advisory service (local and regional); national institutions</i>
<b>Objectives</b>	3. Defining strategic actions and projects for landscape preservation, and preparing technical conditions for obtaining finances from national and EU funds
<b>Expected results</b>	<ul style="list-style-type: none"> <li>- <i>Conducted consultative process for collecting information on the uniqueness of the Oplenac vineyard terraces as unique landscape of high historical and natural value</i></li> <li>- <i>Created programme for revitalization of the terraces with relevant institutions who are in charge for nature and history protection</i></li> <li>- <i>Selected first areas for revitalization of terraces</i></li> <li>- <i>Finalised terraces in the pilot area</i></li> <li>- <i>Created touristic programme for visiting the terraces</i></li> </ul>
<b>Indicators</b>	<ul style="list-style-type: none"> <li>- <i>Reports from the consultative process</i></li> <li>- <i>Database with existing and vanished terraces in the Municipality of Topola</i></li> <li>- <i>Comprehensive programme for revitalization of the terraces made available to the wider audience (created in the participatory process with high level of public consultations)</i></li> <li>- <i>Touristic programme is accepted, increasing interest and number of visits to the area</i></li> </ul>
<b>Key stakeholders/partners involved</b>	<i>Municipality of Topola (LER) Producer Association/s Secondary school students</i>
<b>Connectivity to other activities</b>	<i>All activities are leading to this one as the final result</i>
<b>Potential resources</b>	<i>Local self-government funds, projects, Producer association mobilizing their members to take active participation in the programme</i>
<b>Potential transfer of good practices</b>	2. Biodistrict 7. Dry stone walls 17. Participatory land maintenance systems; land stewardship 22. Social learning and knowledge generation
<b>Potential risks and obstacles</b>	<p><i>Long and very demanding process need detailed planning and good facilitation</i></p> <p><i>Low level of capacities at the local level to implement such a complex process</i></p> <p><i>Insufficient knowledge and lack of comprehensive data on natural and historical heritage of the area</i></p>

<b>On which level the activity will be implemented (local/regional/national/) and which kind of document</b>	Local and regional level National Plan for Rural Development 2022-2024 Strategy for agriculture and rural development of the Municipality of Topola 2017-2027 Development Plan of the Municipality of Topola 2021-2031
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## **7. WAY OF IMPLEMENTING AGROECOLOGY IN VITICULTURE INTO POLICY PAPERS**

The agroecological transition entails a long-term process of adopting tailored solutions to context specific challenges, so to achieve short-, mid- and long-term steps and its activities, there needs to be developed more interdisciplinary approach and to be transferred to different policy and decision-maker level.

As already stated in the previous parts of the action plan, the implementation of the agroecology transition and overall adoption of the practices in the Topola region, as well as in other parts of the Republic of Serbia are closely related to the implementation of these Action plan, but it is closely related, in the first place, to the implementation of the national and local/regional strategic plans and documents.

The list of the documents is longer, but the main documents are the following:

- National Plan for Rural Development 2022-2024
- Strategy for agriculture and rural development of the Municipality of Topola 2017-2027
- Development Plan of the Municipality of Topola 2021-2031

Currently, the Republic of Serbia is developing additional programmes (under the IPARD programme) for financial support to the agroecological transition and implementation of the agroecology in Serbia.

Therefore, under this Action plan stakeholders and project partner (RBC) were not able to set the financial span that is needed for implementation of the defined actions.

The financial plan for implementation of the action plan activities will be developed in the process of direct annual planning for financing these activities. This planning is done in the last quarter of each year, and if an action needs to be financed through several years, the total projected sum is defined in the first year, to be divided by the number of implementation years.

Leading actor/s will be doing this planning, while the RBC will support them with information and project support where and if possible.

## Reference list:

List of documents at National and local level

- National Plan for Rural Development 2022-2024 <http://www.minpolj.gov.rs/nacionalni-program-ruralnog-razvoja-za-period-2022-2024-godine/>
  - Strategy for agriculture and rural development of the Municipality of Topola 2017-2027 [https://www.topola.com/dokumenta/strategija\\_polj\\_rr.pdf](https://www.topola.com/dokumenta/strategija_polj_rr.pdf)
- Development Plan of the Municipality of Topola 2021-2031 <https://topola.rs/3194-2/>



# Ecological Vineyards Governance Activities for Landscape's Strategies

Deliverable T2.3.1

## LOCAL ACTION PLAN FOR CONSERVATION OF LANDSCAPE AND HABITAT IN VITICULTURE AREA AND FOR VALORISATION OF ECOSYSTEM SERVICES

Responsible Partner

Research Centre of the Slovenian Academy of Sciences  
and Arts (ZRC-SAZU) (PP4)

30/01/2022

**BASIC PROJECT INFORMATION:**

PROGRAMME CALL: INTERREG V-B Adriatic-Ionian ADRION

Project Acronym ECOVINEGOALS

Project Number: 866

Programme Priority Axis: 2

Start – End Date: 01.03.2020 – 31.08.2022

Total budget: EUR 1 939 505.59

ERDF: 1 399 759.25 IPA: 248 820.5

**Lead Partner Organisation: LAG Eastern Venice, Italy**

Url: [www.ecovinegoals.interregadrion.eu](http://www.ecovinegoals.interregadrion.eu)

**DOCUMENT INFORMATION**

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<b>Dissemination Level</b>	PP

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month, year

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## Project Summary

ECOVINEGOALS promotes sustainability and resilience in the winemaking industry by encouraging the transition of intensive viticulture towards agroecological management systems that protect natural habitats and landscapes, while reducing chemical and fossil fuel inputs and harmful emissions. The project aims to enhance stakeholders' skills in participatory local governance, to strengthen transnational cooperation and provide specific transnational instruments to promote, support and manage the agroecological transition.

### **Expected results**

- Sharing between partners in the ADRION countries of fundamental concepts and practices necessary for the transition from intensive viticulture management systems, towards agroecological management methods.
- Improvement of the participatory local governance skills of decision makers and all other viticulture stakeholders, both public and private, to jointly develop and define strategies and plans aiming to protect natural habitats and rural landscapes.
- Transnational communication, cooperation, and exchange between regional authorities and civil society organizations concerning common objectives to protect vulnerable environments, to promote ecosystem services, to prevent or mitigate climate change, and to avoid social conflicts in land use.
- An increase in the number and quality of tools and strategies available to support the planning and management of the agroecological transition of viticulture systems in the region.

### **Partnership:**

<b>PP1- LP</b>	<b>LAG EASTERN VENICE, VEGAL (IT)</b>
PP2	Autonomous Province of Trento, PAT (IT)
PP3	Chamber of Agriculture and Forestry of Slovenia, KGZS-Zavod GO (SI)
PP4	Research Centre of the Slovenian Academy of Sciences and Arts, ZRC SAZU (SI)
PP5	Agency for Rural Development of Istria Ltd Pazin, AZRRI (HR)
PP6	Association for the promotion of employment, vocational training and education, INFORMO (HR)
PP7	Business Development Center Kragujevac, BDCKG (RS)
PP8	Foundation Business Start-up Center Bar, BSC BAR (ME)
PP9	Municipality of Bar, BAR (ME)
PP10	Mediterranean Agronomic Institute of Chania, CIHEAM MAICh (EL)

### Associated Partners (APs):

General Union Cisl Cultivators Venice (IT)
Bio district of production and biological community of central-eastern Venice - BIO VENICE (IT)
IAL - Innovation Learning Work S.r.l. - Social enterprise (IT)
AIAB-Italian Organic Agriculture Association (IT)
Agroecologiki SP (EL)
Municipality of Topola (RS)
Šumadija winemakers association (RS)
Ministry of Agriculture and Rural Development (HR)
Agroecology Europe (BL)

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## 1. BASIC BACKGROUND OF THE PILOT AREA

The history of Montenegrin winemaking dates back to the Pre-Romanesque period. Crmnica is the wine region of Montenegro with the longest tradition. Human habitats that were using wine amphorae from the 2nd and 1st centuries BC were found in the village of Brčeli. Furthermore, data obtained from the Turkish archives reveal occurrence of very fertile vineyards in Crmnica during the XVI century. Some of the preserved historical data show that about 363.000 liters were produced annually in Crmnica during the XIX century. Wine growing and wine making were intensified significantly from 1874, when Crown Prince Nicholas of Montenegro planted 12.000 grapevines near Virpazar. Furthermore, he passed the Law in 1890 that “each soldier has to plant 200 grapevines” and “that each family that plant 2000 grapevines or more, will be exempted from paying the taxes to the state in the 10 years period”. Grounds of the contemporary wine growing in Montenegro have been set up at the territory of Crmnica in 1911, in the village of Godinje, when the first cluster aimed at the joint wine production was created. In that period, famous wine from Crmnica – Vranac has been rewarded with the grand-prix for its extraordinary quality in London. Regardless of unfavorable events throughout history, such as battles and wars, the citizens of Crmnica have never left their vineyards and wineries, and with respect to the tradition, the quality of the famous wine originating from Crmnica has been in continuous improvement.

Crmnica subregion extends from 42°16'46" to 42°04'43" north latitude. Almost 63% of the area is located at an altitude between 100 m and 400 m, and therefore, there are no major impacts on climatic parameters in terms of temperature decrease, growing season shortening, sugar content reduction and acid content increment. The climatic and topographic properties of Crmnica subregion are strongly influenced by the presence and vicinity of Skadar Lake. Crmnica field continues to the lake coast surrounded by the mountain range consisting of Rumija, Sutorman, Ostrik, Sozina, Trojica and Rasovatac, separating this subregion from the Adriatic Sea. Registered vineyards in Crmnica are mostly distributed in the most fertile part of Crmnica – coastal line of Skadar Lake. Therefore, 34% of the vineyards or 8.20 ha are located in the flat area (inclination lower than 2 degrees). Furthermore, some of the most important vineyards are located from 150 to 199 m (around 2.6 ha of vineyards or 11%), and from 250 to 299 ha (around 4.16 ha or 17.4%). This implies the conclusion that the grapevine growing and viticulture is developed in the lower and upper part of Crmnica, while the flat areas are developed more intensively due to the higher quantities of water, better infrastructure, more fertile land and higher potential for tourism development.

Altered Mediterranean climate is predominant in the subregion of Crmnica, with uneven distribution of precipitation throughout the year. The average vegetation sum of precipitation is 877 mm, while the average annual rainfall equals to 2335 mm, with higher amount of rainfall during the colder months. In the

largest part of Crmnica subregion, the average annual air temperature ranges from 12°C to 14°C, while in the narrow zone, along the Skadar Lake shore, the range is between 16°C and 18°C. Crmnica is characterized by mild winters, and due to the microclimate conditions created by the influence of Skadar Lake, the summer months are characterized by the slightly lower average air temperature than in the other parts of Bar municipality. In general, Crmnica subregion has the optimal average air temperatures for the stages of flowering, shoot growth and grapevine formation, as well as for grape ripening. The average minimum air temperature mostly ranges from 1°C to 5°C, so there is minimal danger of shoots and woody parts freezing. The average maximum air temperature ranges from 26°C to 28°C, while in the higher parts of this subregion this is reduced by 2 degrees in general. These are favorable conditions for quality and controlled ripening of grapes. The average relative humidity within the Crmnica subregion is in the range of 60% to 80%. This vineyard area has enough sunlight that is necessary for the leaves to perform photosynthesis. There are sufficient sunlight and optimal light conditions for the normal growth of the grapevine, as well as for the flowering, fertilization, ripening and achieving excellent yields. The main types of Crmnica's soils are: red soil - terra rossa (about 66%) and brown soil - cambisol (about 16%). Furthermore, there are other soil types that occur less frequently, such as rendzinas, alluvial soils, black soils (calcomelanosol) and gley soils (eugley).

The conditions are very favorable for grapevine production, while the main threats that may endanger consistent production are cryptogammic (fungal) diseases and hail. The most often grapevine varieties grown in this sub-region are Vranac, Kratošija, Lisičina, Marselan, Chardonnay, Cabernet Sauvignon, Merlot etc. Indigenous grapevine varieties, such as Vranac and Kratošija dominate in the production of red wines, while Chardonnay and Krstač are the most spread varieties for the production of white wines.

There are almost 24 ha of registered vineyards in this area and almost 80% of them are located in the protected area of National park "Skadar Lake", which is a tremendous opportunity for the development of agritourism, as well to create holistic viticulture approach. Skadar Lake is officially national park from 1983, from 1989 it has IBA status, while from 1995, it has been on Ramsar list as well. It occupies territories of the three municipalities – Podgorica, Bar and Cetinje (in Montenegro) and covers around 40.000 ha. Length of the coast is 110.5 km. Around 27 thousand hectares of this national park belongs to the pilot area of Crmnica. Vineyards in Crmnica are predominately present in villages of Sotonići, Limljani, Godinje, Seoca, Boljevići, Brčeli, Mačuge, Ovtočići and Dupilo. The low intensity agricultural area consists of traditionally-based vineyards located in both lower and higher parts of Crmnica, typically recognized by the presence of stone wall terraces. Built up and other artificial areas make only 0.23% or cca 110 ha, which emphasizes great possibilities for the development of agroecology and sustainable, organic viticulture.

## **2. STRENGTHS AND WEAKNESS OF THE PILOT AREA**

### **2.1 Main strengths of the local viticulture**

Even though agriculture negatively affects the environment through soil, water and air degradation and pollution; in Crmnica, there are no identified severe negative environmental impacts. First of all, vineyards are mostly raised on fertile lands or at the hill slopes, but there were no significant deforestation activities. Since there are no water supply network in most of the villages within Crmnica, and therefore, winegrowing is predominantly rainfed, Skadar Lake and nearby rivers are not polluted by nitrates, phosphates and pesticides. Also, taking into consideration that heavy mechanization is rarely used; air is not contaminated with toxic gases. Richness of biodiversity in and nearby the Skadar Lake tells the story about ecological winegrowing in Crmnica. Lake, wells, reservoirs and ponds eutrophication (explosion of algae that suppress other aquatic plants and animals) has not been identified. Actually, wine growing in Crmnica contributed to the natural resources by storing carbon in soils, enhancing the infiltration of soil water and preserving rural landscapes and biodiversity. However, there is a need for further analysis in domain of groundwater pollution caused by mineral fertilizers (possible excess of nitrogen and phosphates). One of the major concerns is the heavy usage of insecticides, herbicides and fungicides and therefore it is particularly important to raise the awareness of farmers on adequate choice, concentration and time period of pesticides usage. Also, pesticides usage should be restricted and restrained by stricter regulations and fees. The future should be dedicated towards the increasing use of “smart” pesticides, resistant grapevine varieties and ecological methods of pest control (“IPM”). National research projects related to biodiversity have shown that the winegrowing does not have negative effect on important soil nutrient recyclers, crop pollinators and pests’ predators, and therefore the pressures on biodiversity were classified as “low”.

Viticulture in Crmnica is characterized by the dominance of small family owned vineyards where mainly autochthonous cultivars assortment is present. Although Crmnica has a great potential and excellent environmental conditions for viticulture development, wine imports much more than it exports. Therefore, it is necessary to create more stable production by clustering and modernization of production processes, in collaboration with professional, scientific and government institutions. The cooperation in domain of viticulture should focus on production of virus-free propagation material, introduction of new, more resistant cultivars, but as well preserving autochthonous varieties in the vineyards of Crmnica. Also, the clusters and/or association of wine makers have to joint their performance in order to become competitive on the world wine market stage. Wine cluster should contribute to making Crmnica recognizable wine-growing region of the southern Europe. Winemakers have to function in clusters in order to better use EU

funds and other interregional resources related to the development of viticulture and viniculture. Moreover, advisory services have to be more dedicated towards allocation of funds from entity agricultural budgets for viticulture development. Also, one of the further steps should be related to the vineyard cadaster creation, as one of the obligations posed by the EU that would simplify management, promotion and preservation of viticulture practices, but as well it would oblige farmers to register their business. Subsidies and incentives have to be directed towards more intensive usage of fertile arable land, since the viticulture is one of the most important sectors for employment in rural areas that may reduce rural poverty and depopulation. Growing regulations have to be stricter and therefore it is necessary to select and prescribe appropriate growing systems and accordingly spacing of planting and number of plants per unit area. Furthermore, it is important to facilitate the process of registering organic farming by enhancing cooperation between their professional advisory services and producers. Crmnica is abundant of natural beauties that are insufficiently explored. Variety of local products and possibilities for further development of adventure tourism has to become an unforgettable component of visitors' or tourists' experience. In the last decade, new tourist products have been developed, such as "Wine roads" and there is a need for their further valorization, including good marketing and packaging of products. Also, there is a great opportunity in terms of preserving rural authenticity and tradition in order to develop cultural tourism as a complementary to wine tourism.

Viticulture in Crmnica has to focus on the following: connection of viticulture with tourism (wine tourism, agri-tourism, rural tourism, adventure tourism); connection of viticulture with culture (preservation and valorization of cultural heritage within the wine destination); connection of viticulture with science (aimed towards raising skills and knowledge about more profitable agroecological grape production without negative environmental impact) and connection of viticulture with overall national economy (reduction of grapes and wine import and reduction of rural unemployment).

## **2.2 Main weaknesses of the local viticulture**

Vineyards in Crmnica are very fragmented and therefore, there is a limited scope of the domestic production and expressed difficulties in delivering consistent quality and quantity of wines from small producers. Also, there is a lack of promotion of domestic production and products on both national and international market. Production of wine is oriented to the local market only; while there is usually no strong collaboration with HORECA sector (waiters often offer foreign wines instead of national products). The level of investments in both primary and secondary wine production is far below the needs. The expenses are very high for individuals, and therefore formation of cluster is necessary. The machinery is usually outdated, while the viticulture is mostly rainfed, meaning that irrigation systems are very rare. Also, local population is not aware about the significance of connecting agriculture with rural tourism and richness of natural and cultural assets that may be valuable subjects related to wine tourism. Furthermore,

one of the problems is the presence of grey economy, as well as insufficiently developed infrastructure (unregulated landfills, weak and unsecure electricity, undeveloped water supply and sewage network, unpaved roads etc.). Crmnica is often not promoted as a wine destination at international fairs and it refers to the absence of cooperation between public and private sector. Also, there is a lack of database with compiled information about winegrowers, winemakers and other related tourism services providers from the region. Modernization of the agricultural information management system, including Agricultural Census as well as development of the farm register and preparation of related cadastral maps for wine growing related to the further strengthening of the food safety system is necessary, which would stimulate and oblige registration of farmers and their production.

Also, wine growers emphasize the fact that the Law on Wine (“Official Gazette of Montenegro”, No. 36/07) that regulates the production and distribution of grapes used for wine production and distribution of wine and other grape and wine products, labeling, geographic origin of wine and other issues of importance for viticulture and wine production is not completely compatible with their real needs.

Finally, there is a strong need for increasing production and further quality improvement, and therefore, support has to be targeted for investments in equipment and facilities necessary for the production of high quality wines. It is necessary to improve efficiency and productivity by introduction of new technologies in order to increase competitiveness of the products on the market, as well as to improve processing capacities, quality standards and food safety, packaging, marketing and promotional activities.

**Table 1: Main strengths and weaknesses of the pilot area**

STRENGTHS (S)	WEAKNESSES (W)
<ul style="list-style-type: none"> <li>• Authenticity of the subregion, offer and traditional values;</li> <li>• Abundance of natural beauties (Skadar Lake, rivers, mountain massifs, biodiversity etc.);</li> <li>• Favorable environmental conditions and geographic location for growing grapes (soil and climate);</li> <li>• Very high quality autochthonous sort and germplasm rich vine;</li> <li>• The low level of use of fertilizers and pesticides due to traditional practices and non-intensive wine making;</li> <li>• Production of wines from autochthonous sorts (predominantly from Vranac and Kratošija varieties);</li> </ul>	<ul style="list-style-type: none"> <li>• The limited scope of domestic production and parcels fragmentation;</li> <li>• Insufficient area of irrigated land (rainfed wine making);</li> <li>• Outdated machinery, lack of processing equipment and the availability of supplies at affordable prices;</li> <li>• The level of investment far below the needs (low share in the capital budget of local and national institutions);</li> <li>• Production for own use or exclusively oriented to the local market;</li> <li>• Difficulties in delivering consistent quality and quantity of wines from small producers;</li> </ul>

- The presence of short and direct supply channels in the domestic market (direct sales);
- Good position in the wine market in terms of high proportion of wines from Crmnica at local supermarkets;
- High quality grape production;
- Programs of support to viticulture and enology at local and national level;
- Membership in international organizations (OIV and CEVI);
- Active and functional local association of winegrowers and winemakers;
- Variety of products and offer of adventure tourism components;
- Hospitality of local population and rich offer of local eco-products;
- Traditional gastronomic products from Crmnica;
- An EU candidate status – use of funds.
- Lack of promotion on domestic and international market;
- Undeveloped population's awareness about the significance of agritourism;
- Presence of grey economy;
- Insufficiently developed communal infrastructure (roads, electricity, water supply and sewage network, landfills);
- Depopulation of rural areas;
- Mild sanctions for inadequate behavior to the environment;
- A lack in know-how and skills for performing agroecological production;
- A weak connection of rural economy and agriculture with tourism;
- Local population uninformed about the available incentive measure and subsidy schemes;
- A lack of institutionalized support to the population to apply for the incentives and to register their households;
- Inadequate promotion of Crmnica as a wine region at international fairs and other similar events;
- A lack of the initiative for the improvement and networking of supply;
- A small number of individual or private producers registered for providing these services;
- The absence of cooperation between public and private sector;
- Insufficient engagement of the local population in terms of preserving cultural-heritage authenticity and tradition;
- A lack of wine database with compiled contact information in Crmnica;
- Undeveloped cultural tourism in relation to wine tourism;

- Inadequate tourism infrastructure (signalization);
- Insufficient knowledge of the procedures relevant to organic farming;
- Need to introduce HACCP and Global GAP standards;
- Outdated growing techniques and limited technical knowledge;
- Poor managerial skills of farmers and producers.

### 3. OBJECTIVES OF THE LOCAL ACTION PLAN FOR CONSERVATION OF LANDSCAPE AND HABITAT

#### ***1. Management of natural resources in a long-term sustainable manner that is harmonized with environmental protection principles***

This objective summarizes the activities related to the incorporation of environmental protection principles into viticulture and wine making industry. Furthermore, it is focused on the comprehensive protection of natural resources, such as: prevention of soil degradation and desertification, prevention of water eutrophication and other means of pollution; prevention of risks related to the loss of biodiversity and genetic resources in viticulture; valorization of preserved landscapes throughout the development of certified organic agriculture; preservation of traditional and extensive, but effective and sustainable production technologies etc.

#### ***2. Ensuring an adequate standard of living for the rural population together with the preservation of traditional values of rural areas***

This objective summarizes the activities related to ensuring adequate living conditions in rural areas in terms of enhancing economic and social activities aimed towards keeping the population to inhabit the villages permanently and therefore stopping internal migrations towards the capital and the coastal cities. Furthermore, the objective is dedicated towards the development of areas with less favorable conditions for economic activities, development of rural infrastructure (regulating landfills, securing electrical network, developing water supply and sewage network, paving the public roads etc.), diversifying economic activities and this increasing

income in rural region, with special emphasis on different forms of tourism, protection and preservation of cultural heritage and ambient characteristics of the areas, ensuring the affirmation of diversity, protection and affirmation of women's rights in rural areas etc.

### ***3. Ensuring traceable high quality grapevine production and wine-making leading to increasing competitiveness and recognizability of local producers***

This objective summarizes the activities aimed towards improving the quality of the final products (grape and wine), by implementation of international standards, homogenous production technologies, introduction of traceability system, promotion and protection of specific characteristics of grapevine production (i.e. protection of geographical indication), production of constant larger quantities through clustering and networking, and therefore mitigating the problems related to the scattered and fragmented production. This objective envisages joint actions that enable more efficient operations in the vineyards, better technical equipment, better efficiency in input supply, more successful access to credit funds, professional training and education, attracting youth to initiate their own business in this sector, strengthening the marketing skills etc. This may be achieved only if the national legislation is completely harmonized with international (EU) standards and only if research institutions adjust and dedicate their activities towards the real needs of the sector.

## **4. SHORT TERM STEPS FOR CONSERVATION OF LANDSCAPE AND HABITAT IN VITICULTURE AREA AND FOR VALORIZATION OF ECOSYSTEM SERVICES**

**Table 2: List of short-term steps (1-2 years), i.e. activities for conservation of landscape and habitat in viticulture area of Crmnica**

<b>Efficient use of agricultural water resources through introduction of deficit irrigation</b>
<b>Reducing runoff and soil erosion by planting natural ground covers and restoration of dry-stone walls and terraces</b>

## **5. DESCRIPTION OF THE SHORT TERM STEPS FOR CONSERVATION OF LANDSCAPE AND HABITAT IN VITICULTURE AREA AND FOR VALORIZATION OF ECOSYSTEM SERVICES**

<b>Name</b>	<b>1.1. EFFICIENT USE OF AGRICULTURAL WATER RESOURCES THROUGH INTRODUCTION OF DEFICIT IRRIGATION</b>
<b>Time frame</b>	2 years
<b>Short description of this activity</b>	This activity is dedicated towards knowledge and skills sharing about irrigation necessity in wine growing with related benefits, while taking into consideration efficient water usage, fertilization opportunities, soil fertility enhancement etc.
<b>Responsible person/Institution</b>	<ul style="list-style-type: none"> <li>- Ministry of Agriculture, Forestry and Water Management</li> <li>- Municipality of Bar</li> </ul>
<b>Objectives</b>	<b><i>1 Management of natural resources in a long-term sustainable manner that is harmonized with environmental protection principles</i></b>
<b>Expected results</b>	<ul style="list-style-type: none"> <li>- Improved efficiency of the plants' metabolism to increase yields and enhance crop quality</li> <li>- Increased plant tolerance to recover from abiotic stresses</li> <li>- Facilitate nutrient assimilation, translocation and use</li> <li>- Enhanced quality attributes of the final product</li> <li>- More efficient water usage</li> <li>- Enhanced soil fertility</li> <li>- Avoid wasting water</li> <li>- Raised awareness among farmers about negative effects of water wasting</li> <li>- Avoiding surplus and stagnation of water that may cause damage to the root systems and excessive washout of nutrients in the soil</li> </ul>
<b>Indicators</b>	<ul style="list-style-type: none"> <li>• Share of total irrigated grapevine area in Crmnica</li> <li>• Number of farms with introduced irrigation systems</li> <li>• Changes in total agricultural water used (m<sup>3</sup>)</li> <li>• Percentage of nutrients output to nutrients input</li> </ul>
<b>Key stakeholders/partners involved</b>	<ul style="list-style-type: none"> <li>- Ministry of Agriculture, Forestry and Water Management</li> <li>- Associations of grapevine growers and wine producers</li> <li>- Institute for Hydrometeorology and Seismology of Montenegro</li> <li>- University of Montenegro – Biotechnical Faculty</li> <li>- Environmental protection agency of MNE</li> <li>- MONTEORGANICA</li> <li>- Municipality of Bar</li> </ul>
<b>Connectivity to other activities</b>	1.1 and 1.4
<b>Potential resources</b>	Budget of national and local authorities International grants
<b>Potential transfer of good</b>	B.S.4 Bio stimulants in viticulture

<b>practices</b>	B.S.12 Sustainable irrigation in the vineyard
<b>Potential risks and obstacles</b>	<ul style="list-style-type: none"> <li>- Unwillingness of farmers to change habits</li> <li>- Insufficient supply of high quality contemporary irrigation equipment and spare parts</li> <li>- Variable costs of production inputs</li> <li>- Uncertain climatic characteristics (low amount of precipitation risk)</li> </ul>

1.2. REDUCING RUNOFF AND SOIL EROSION BY PLANTING NATURAL GROUND COVERS AND RESTORATION OF DRY-STONE WALLS AND TERRACES	
<b>Name</b>	
<b>Time frame</b>	2 years
<b>Short description of this activity</b>	This is very important activity for Crmnica subregion taking into consideration scattered agricultural areas located within the hill slopes. Therefore, there are two scopes of activities – one dedicated to the old-fashioned skills of dry stone walls building and restoration, and the other one considering importance of natural ground covers for long-term improvement of soil fertility and preservation of biodiversity in the area.
<b>Responsible person/Institution</b>	<ul style="list-style-type: none"> <li>- Associations of grapevine growers and wine producers</li> <li>- Ministry of Agriculture, Forestry and Water Management</li> </ul>
<b>Objectives</b>	<b><i>1 Management of natural resources in a long-term sustainable manner that is harmonized with environmental protection principles</i></b>
<b>Expected results</b>	<ul style="list-style-type: none"> <li>- Long-term improved soil fertility</li> <li>- Improved micro-climatic conditions under grapevine</li> <li>- Lower incidence of pests and diseases</li> <li>- Reduction of pollutant release (emissions)</li> <li>- Maintained landscape beauty and natural diversity</li> <li>- Preservation of territory uniqueness</li> <li>- Conserved historical (cultural) heritage of the territory</li> <li>- Preserved quality of the terraced landscaped</li> <li>- Conserved territory by avoiding erosion occurrence</li> <li>- Created ideal environment for the birth of flora and a refuge for multiple animals</li> <li>- Regulated surface water-flows</li> <li>- Proliferation of spontaneous flora and fauna</li> <li>- Increased environmental sustainability of hilly agro-ecosystem of high landscape value</li> </ul>

<b>Indicators</b>	<ul style="list-style-type: none"> <li>• Percentage of repaired dry stone walls per year</li> <li>• Number of people educated in domain of traditional techniques of dry stone walls conservation</li> <li>• Number of trainings held related to this subjects</li> <li>• Number of days in a year that agricultural soils are covered with vegetation</li> </ul>
<b>Key stakeholders/partners involved</b>	<ul style="list-style-type: none"> <li>- Associations of grapevine growers and wine producers</li> <li>- Ministry of Agriculture, Forestry and Water Management</li> <li>- Municipality of Bar</li> <li>- Tourism Board of Bar</li> <li>- Associations of grapevine growers and wine producers</li> <li>- Environmental protection agency of MNE</li> </ul>
<b>Connectivity to other activities</b>	1.1
<b>Potential resources</b>	<p>Budget of national and local authorities</p> <p>International grants</p>
<b>Potential transfer of good practices</b>	<p>B.S.1 Agroforestry</p> <p>B.S.7 Maintenance of traditional elements of Winescape – Dry stone walls</p> <p>B.S.11 Mechanical inter-row weed control in vineyard</p> <p>B.S.27 Erosion prevention</p>
<b>Potential risks and obstacles</b>	<ul style="list-style-type: none"> <li>- Uncertain climatic characteristics (high amount of precipitation)</li> <li>- Unavailability of equipment and inputs</li> <li>- Variable costs of production inputs</li> <li>- Unpredictable changes in the provision of institutional services (non-allocation of financial sources)</li> <li>- Internal and external migration risks (labor shortage)</li> <li>- Ignorance of traditional techniques related to dry-stone walls conservation</li> <li>- Risk of urbanization</li> </ul>

## 6. MID-TERM STEPS FOR CONSERVATION OF LANDSCAPE AND HABITAT IN VITICULTURE AREA AND FOR VALORIZATION OF ECOSYSTEM SERVICES

**Table 3: List of mid-term steps (3-5 years), i.e. activities for conservation of landscape and habitat in viticulture area of Crmnica**

<b>Preservation of traditional ambient arrangement and authenticity of the sub-region in the function of rural tourism development</b>
<b>Increasing the areas under certified organic vineyards with contemporary practices in the sub-region of Crmnica</b>
<b>Development and improvement of communal, public and road infrastructure in the function of sustainable management of natural resources</b>

## 7. DESCRIPTION OF MID TERM STEPS FOR CONSERVATION OF LANDSCAPE AND HABITAT IN VITICULTURE AREA AND FOR VALORIZATION OF ECOSYSTEM SERVICES

<b>Name</b>	<b>2.1. PRESERVATION OF TRADITIONAL AMBIENT ARRANGEMENT AND AUTHENTICITY OF THE SUB-REGION IN THE FUNCTION OF RURAL TOURISM DEVELOPMENT</b>
<b>Time frame</b>	3 years
<b>Short description of this activity</b>	This activity is a process aimed to obtain the status of "Ambient units" for various parts of Crmnica project area, that will enable restoration of old houses and other cultural-historical objects in the area in homogenous way that incorporates well with the landscape and habitat. Therefore, this activity will prevent degradation and urbanization of the area.
<b>Responsible person/Institution</b>	<ul style="list-style-type: none"> <li>- Ministry of Ecology, Spatial Planning and Urbanism</li> <li>- Ministry of Agriculture, Forestry and Water Management</li> <li>- National Tourism Organization of Montenegro</li> </ul>
<b>Objectives</b>	<i><b>II Ensuring an adequate standard of living for the rural population together with the preservation of traditional values of rural areas</b></i>
<b>Expected results</b>	<ul style="list-style-type: none"> <li>- Obtained status of "Ambient units" for various parts of Crmnica project area</li> <li>- Restored old houses and other cultural-historical</li> </ul>

	<p>objects in the area</p> <ul style="list-style-type: none"> <li>- Raised awareness about history of the region correlated to the grapevine growing and wine production</li> <li>- Enhanced and diversified rural tourism offer in Crmnica</li> <li>- Promoted wine tourism along with cultural tourism</li> <li>- Promoted local products and handcrafts</li> <li>- Introduced contemporary techniques related to grapevine growing, processing and storing</li> <li>- Better wine quality (wine characterized by personality, character and good aging potential)</li> </ul>
<b>Indicators</b>	<ul style="list-style-type: none"> <li>• Number of strategies and action plans developed and adopted related to rural authenticity preservation</li> <li>• Number of regulations, restrictions and fees implemented in order to preserve traditional arrangement and therefore mitigate urbanization and cementation of the area</li> </ul>
<b>Key stakeholders/partners involved</b>	<ul style="list-style-type: none"> <li>- Ministry of Ecology, Spatial Planning and Urbanism</li> <li>- Associations of grapevine growers and wine producers</li> <li>- Municipality of Bar</li> <li>- National Tourism Organization of Montenegro</li> <li>- Tourism Board of Bar</li> <li>- Ministry of Agriculture, Forestry and Water Management</li> <li>- University of Montenegro – Biotechnical Faculty</li> <li>- University of Montenegro – Faculty of Architecture</li> </ul>
<b>Connectivity to other activities</b>	1.4 / 2.2 / 2.3
<b>Potential resources</b>	<p>Budget of national and local authorities</p> <p>International grants</p>
<b>Potential transfer of good practices</b>	<p>B.S.9 Hand picking the grapes</p> <p>B.S.24 Wine routes as promotional tools for viticulture</p>
<b>Potential risks and obstacles</b>	<ul style="list-style-type: none"> <li>- Risk of urbanization</li> <li>- Variable costs of inputs</li> <li>- Insufficient supply of contemporary construction materials</li> <li>- Mass tourism risk</li> <li>- Changes in consumers' preferences and level of income</li> <li>- Unpredictable changes in the provision of institutional services (non-financial allocation)</li> <li>- Internal and external migration risks (labor shortage)</li> <li>- Epidemiological risk</li> </ul>

Name

**3.1. INCREASING THE AREAS UNDER CERTIFIED ORGANIC VINEYARDS WITH CONTEMPORARY PRACTICES IN THE SUB-REGION OF CRMNICA**

<b>Time frame</b>	5 years
<b>Short description of the area</b>	Even though there are various ecological practices implemented in Crmnica's vineyards, there are still no officially recognized organic vineyards. Therefore, this activity is dedicated towards stimulating farmers to initiate the process of organic agriculture certification, as well as relevant public stakeholders to solve complicated bureaucracy procedures. Also, this activity envisages obtaining the quality schemes by farmers, such as "Protected Designation of Origin".
<b>Responsible person/Institution</b>	<ul style="list-style-type: none"> <li>- Associations of grapevine growers and wine producers</li> <li>- Municipality of Bar</li> <li>- Ministry of Agriculture, Forestry and Water Management</li> </ul>
<b>Objectives</b>	<b><i>III Ensuring traceable high quality grapevine production and wine-making leading to increasing competitiveness and recognizability of local producers</i></b>
<b>Expected results</b>	<ul style="list-style-type: none"> <li>- Larger areas under vineyards</li> <li>- Stimulated farmers to implement organic practices</li> <li>- Better quality and higher costs of the final products</li> <li>- Obtained scheme "Protected designation of origin"</li> <li>- Adopted agroecological system approaches at field level</li> <li>- Simplified organic certification schemes for producers</li> <li>- Enhanced environmental awareness and local traditions</li> <li>- Recognized food sovereignty and cultural identity of the local community</li> <li>- Encouraged development of local markets for organic food products</li> <li>- Encouraged diversified production and avoiding strong focus on monoculture</li> <li>- Facilitated small farmers' access to local markets</li> <li>- Facilitated young farmers' access to organic growing</li> <li>- Encouraged insertion of social justice rules and practices as an essential element of organic production systems</li> </ul>
<b>Indicators</b>	<ul style="list-style-type: none"> <li>• Number of registered organic farms in Crmnica</li> <li>• Share of the total agricultural area under organic farming</li> <li>• Share of different land use types converted to agriculture land use</li> <li>• Share of agriculture land use type converted to other land use types</li> </ul>
<b>Key stakeholders/partners involved</b>	<ul style="list-style-type: none"> <li>- Ministry of Agriculture, Forestry and Water Management</li> </ul>

	<ul style="list-style-type: none"> <li>- MONTEORGANICA</li> <li>- Associations of grapevine growers and wine producers</li> <li>- University of Montenegro – Biotechnical Faculty</li> <li>- Environmental protection agency of MNE</li> <li>- Municipality of Bar</li> </ul>
<b>Connectivity to other activities</b>	1.1 / 1.2 / 1.3
<b>Potential resources</b>	Budget of national and local authorities International grants
<b>Potential transfer of good practices</b>	B.S.2 Bio-district B.S.16 Participatory Guarantee Systems (PGS)
<b>Potential risks and obstacles</b>	<ul style="list-style-type: none"> <li>- Unpredictable changes in the provision of institutional support and services</li> <li>- Uncertain climatic characteristics</li> <li>- Unwillingness of farmers to change habits</li> <li>- Unavailability of production inputs</li> <li>- Variable costs of production inputs</li> <li>- Changes in consumers preferences and level of income</li> <li>- Internal and external migration risks (labor shortage)</li> </ul>

<b>Name</b>	<b>2.2. DEVELOPMENT AND IMPROVEMENT OF COMMUNAL, PUBLIC AND ROAD INFRASTRUCTURE IN THE FUNCTION OF SUSTAINABLE MANAGEMENT OF NATURAL RESOURCES</b>
<b>Time frame</b>	5 years
<b>Short description of the activity</b>	These activities are related to the annual plans and programs for local authority, local community and local tourism board in order to dedicate more significant funds for improvement of public infrastructure (wider and better roads, secure electricity and water supply, regulated waste and waste water disposal, placed signposts, WiFi network etc).
<b>Responsible person/Institution</b>	<ul style="list-style-type: none"> <li>- Municipality of Bar</li> <li>- Local community Crmnica</li> <li>- Tourism board of Bar</li> </ul>
<b>Objectives</b>	<b><i>II Ensuring an adequate standard of living for the rural population together with the preservation of traditional values of rural areas</i></b>
<b>Expected results</b>	<ul style="list-style-type: none"> <li>- Improved public infrastructure and signposts that lead towards vineyards and wineries</li> <li>- Developed and improved based infrastructure in faraway Crmnica villages</li> <li>- Increased accessibility to the roads and tracks</li> <li>- More secured electricity and water supply</li> <li>- Regulated waste disposal</li> <li>- Regulated waste water disposal</li> <li>- Improved tourism infrastructure</li> </ul>

	<ul style="list-style-type: none"> <li>- Introduced strong and wide WiFi network</li> </ul>
<b>Indicators</b>	<ul style="list-style-type: none"> <li>• Length of the roads with developed infrastructure</li> <li>• Number of regulated wild landfills</li> <li>• Number of households connected to sewerage network</li> <li>• Number of household connected to public water supply</li> <li>• Number of households with implemented renewable energy systems</li> <li>• Share of households with electric power stability</li> <li>• Number of signalization tools put in the project area</li> </ul>
<b>Key stakeholders/partners involved</b>	<ul style="list-style-type: none"> <li>- Ministry of Agriculture, Forestry and Water Management</li> <li>- Municipality of Bar</li> <li>- Local community Crmnica</li> <li>- Tourism board of Bar</li> <li>- National park Skadar Lake</li> </ul>
<b>Connectivity to other activities</b>	1.4 / 2.1
<b>Potential resources</b>	Budget of national and local authorities International grants
<b>Potential transfer of good practices</b>	N/A
<b>Potential risks and obstacles</b>	<ul style="list-style-type: none"> <li>- Unpredictable changes in the provision of institutional services (non-allocation of financial resources by local and national authorities)</li> <li>- Unwillingness of farmers to change habits</li> <li>- Unavailability of inputs</li> <li>- Variable costs of inputs</li> <li>- Internal and external migration risks (labor shortage)</li> <li>- Epidemiological risk</li> </ul>

## 8. LONG TERM STEPS FOR CONSERVATION OF LANDSCAPE AND HABITAT IN VITICULTURE AREA AND FOR VALORIZATION OF ECOSYSTEM SERVICES

**Table 4: List of long-term steps (6-10 years), i.e. activities for conservation of landscape and habitat in viticulture area of Crmnica**

<b>Protecting existing natural areas from uncontrolled urbanization and unsustainable and illegal use of natural resources</b>
<b>Raising the awareness and knowledge among viticulture stakeholders about the importance of landscape and habitat conservation during the viticulture modernization process</b>

## 9. DESCRIPTION OF LONG TERM STEPS FOR CONSERVATION OF LANDSCAPE AND HABITAT IN VITICULTURE AREA AND FOR VALORIZATION OF ECOSYSTEM SERVICES

Name		2.3. PROTECTING EXISTING NATURAL AREAS FROM UNCONTROLLED URBANIZATION AND UNSUSTAINABLE AND ILLEGAL USE OF NATURAL RESOURCES
Time frame	Continuous process	
Short description of this activity	This is very important preventive list of activities that is needed in order to control urbanization and unsustainable and illegal use of natural resources for long period. Therefore, this activity proposes to create more strict control procedures followed by higher fees, adoption of regulations concerning urbanization control in Skadar Lake region, but as well other activities such as garbage disposal, fishing, hunting, trees cutting etc.	
Responsible person/Institution	<ul style="list-style-type: none"> <li>- Ministry of Ecology, Spatial planning and Urbanism</li> <li>- Municipality of Bar</li> <li>- National park Skadar Lake</li> </ul>	
Objectives	<i><b>II Ensuring an adequate standard of living for the rural population together with the preservation of traditional values of rural areas</b></i>	
Expected results	<ul style="list-style-type: none"> <li>- Improved living condition of inhabitants</li> <li>- Preserved soil, water and air from pollutants</li> <li>- Preserved natural landscape appearance</li> <li>- Conserved biodiversity of the whole area</li> <li>- Increased rural tourism possibilities</li> <li>- Increased tourists' satisfaction and overall experience</li> </ul>	
Indicators	<ul style="list-style-type: none"> <li>• Number of regulations adopted concerning urbanization control</li> <li>• Number of fees charged for illegal and hazardous urbanization</li> <li>• Number of regulations adopted concerning illegal hunting, fishing, trees cutting, unregulated garbage disposal, unregulated wastewater disposal etc.</li> </ul>	

	<ul style="list-style-type: none"> <li>• Number of fees charged concerning illegal hunting, fishing, trees cutting, unregulated garbage disposal, unregulated wastewater disposal etc.</li> </ul>
<b>Key stakeholders/partners involved</b>	<ul style="list-style-type: none"> <li>- Ministry of Ecology, Spatial planning and Urbanism</li> <li>- Municipality of Bar</li> <li>- National park Skadar Lake</li> <li>- National Tourism Organization of Montenegro</li> <li>- Local community Crmnica</li> <li>- Environmental protection agency of MNE</li> </ul>
<b>Connectivity to other activities</b>	1.4 / 2.1 / 2.2
<b>Potential resources</b>	<p>Budget of national and local authorities</p> <p>International grants</p>
<b>Potential transfer of good practices</b>	B.S.17 Land Use Maintenance
<b>Potential risks and obstacles</b>	<ul style="list-style-type: none"> <li>- Unpredictable changes in the provision of institutional services</li> <li>- Internal and external migration risks</li> <li>- Epidemiological risk</li> <li>- Unwillingness of people to change habits</li> <li>- Changes in consumers preferences and level of income</li> </ul>

<b>Name</b>	<b>3.2. RAISING THE AWARENESS AND KNOWLEDGE AMONG VITICULTURE STAKEHOLDERS ABOUT THE IMPORTANCE OF LANDSCAPE AND HABITAT CONSERVATION DURING THE VITICULTURE MODERNIZATION PROCESS</b>
<b>Time frame</b>	Continuous process
<b>Short description of the activity</b>	This activity is dedicated to solve the problem related to misunderstanding the concept of agroecology, landscape and habitat conservation by farmers. Therefore, responsible government bodies and educational units should be included in the process of knowledge improvement and awareness raising among interested stakeholders, in order to keep our farmers in Crmnica and to stop village depopulation, simultaneously encouraging biodiversity protection.
<b>Responsible person/Institution</b>	<ul style="list-style-type: none"> <li>- Ministry of Agriculture, Forestry and Water Management</li> <li>- University of Montenegro – Biotechnical Faculty</li> <li>- University of Donja Gorica – Faculty of Food Technology, Food Safety and Ecology</li> <li>- MONTEORGANICA</li> </ul>

<b>Objectives</b>	<b><i>II Ensuring traceable high quality grapevine production and wine-making leading to increasing competitiveness and recognizability of local producers</i></b>
<b>Expected results</b>	<ul style="list-style-type: none"> <li>- Improved knowledge and raised awareness among stakeholders about this subject</li> <li>- Decreased internal and external migrations</li> <li>- Enhanced the political decision-makers on practical actions to enhance the landscape</li> <li>- Protected biodiversity during the production process</li> <li>- Promoted the farm-tourism aspect of the area</li> <li>- Increased consumers' attention for the area</li> <li>- Improved quality of life in rural area</li> <li>- Promoted diversification of economic activities</li> <li>- Improved comparativeness of the viticulture sector</li> <li>- Enhanced environment and rural space through land management</li> <li>- Reduced erosion, decrement of organic matter, contamination, cementation and soil compaction</li> <li>- Reduced decrease in biodiversity, salinization and hydrogeological risks (floods and landslides)</li> </ul>
<b>Indicators</b>	<ul style="list-style-type: none"> <li>• Educational level of farmers</li> <li>• Share of agricultural employment in total civilian employment of the area</li> <li>• Number of trainings, round tables, workshops and similar events organized for the stakeholders in the project area</li> <li>• Net farm income from agricultural activities</li> </ul>
<b>Key stakeholders / partners involved</b>	<ul style="list-style-type: none"> <li>- Ministry of Agriculture, Forestry and Water Management</li> <li>- University of Montenegro – Biotechnical Faculty</li> <li>- University of Donja Gorica – Faculty of Food Technology, Food Safety and Ecology</li> <li>- Associations of grapevine growers and wine producers</li> <li>- Environmental protection agency of MNE</li> <li>- MONTEORGANICA</li> <li>- Municipality of Bar</li> </ul>
<b>Connectivity to other activities</b>	3.3
<b>Potential resources</b>	Budget of national and local authorities International grants
<b>Potential transfer of good practices</b>	B.S.3 Biodiversity friend B.S.13 A board game to identify the perception of the value of the viticulture based on the Landscapital B.S.22 Social learning and knowledge generation in agriculture
<b>Potential risks and obstacles</b>	<ul style="list-style-type: none"> <li>- Unwillingness of farmers to change habits</li> <li>- Changes in consumers preferences and level of income</li> <li>- Unpredictable changes in the provision of institutional</li> </ul>

	<p>services</p> <ul style="list-style-type: none"> <li>- Internal and external migration risks</li> <li>- Epidemiological risk</li> </ul>
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<b>3.3. ENSURING CONTINUOUS SUPPORT OF THE COMPETENT INSTITUTIONS AND RESEARCH &amp; DEVELOPMENT SECTOR</b>	
<b>Name</b>	
<b>Time frame</b>	Continuous process
<b>Short description of this activity</b>	Farmers often claim that there is no strong cooperation between them and relevant R&D bodies in Montenegro. Also, the results obtained by the scientists in this area are not understandable by most of the farmers and there is an evident gap that causes numerous problems when comes to the new technologies and contemporary practices that should be implemented in the vineyards. Therefore, this activity has an aim to enlarge this cooperation in order to open the new spectrum of funding resources and possibilities for farmers.
<b>Responsible person/Institution</b>	<ul style="list-style-type: none"> <li>- University of Montenegro – Biotechnical Faculty</li> <li>- University of Donja Gorica – Faculty for Food Technology, Food Safety and Ecology</li> <li>- Environmental protection agency of MNE</li> <li>- MONTEORGANICA</li> </ul>
<b>Objectives</b>	<b><i>III Ensuring traceable high quality grapevine production and wine-making leading to increasing competitiveness and recognizability of local producers</i></b>
<b>Expected results</b>	<ul style="list-style-type: none"> <li>- Stronger correlation between scientists and farmers</li> <li>- Larger spectrum of funding resources and possibilities</li> <li>- Raised awareness and knowledge of local farmers about importance of landscape conservation</li> <li>- Better understanding of farmers about certification procedures</li> <li>- Better conversance of farmers about subsidies and support measures</li> </ul>
<b>Indicators</b>	<ul style="list-style-type: none"> <li>• Educational level of farmers</li> <li>• Number of research projects initiated and terminated related to this subject</li> <li>• Number of trainings, round tables, workshops and similar events organized for the stakeholders in the project area</li> <li>• Net farm income from agricultural activities</li> <li>• Number of young people from the pilot area engaged in the activities of research and development sector</li> <li>• Number of visits to the farms by the representatives of research and development sector</li> </ul>
<b>Key stakeholders/partners involved</b>	<ul style="list-style-type: none"> <li>- University of Montenegro – Biotechnical Faculty</li> <li>- University of Donja Gorica – Faculty for Food Technology, Food Safety and Ecology</li> </ul>
<b>Connectivity to other activities</b>	3.3

<b>Potential resources</b>	Budget of national and local authorities International grants
<b>Potential transfer of good practices</b>	N/A
<b>Potential risks and obstacles</b>	<ul style="list-style-type: none"> <li>- Unpredictable changes in the provision of institutional services</li> <li>- Unwillingness of farmers to change habits</li> <li>- Changes in consumers preferences and level of income</li> <li>- Epidemiological risk</li> </ul>

## **CONCLUSIONS**

Deliverable T2.3.1 *Local action plan for conservation of landscape and habitat in viticulture area and for valorization of ecosystem services in Montenegrin project area (Crmnica)* comprehended all of the most important activities that need to be initiated and/or finalized in order to be able to intensify viticulture in the project area in order to obtain higher yields, but simultaneously to properly manage natural resources and preserve biodiversity. This LAP has been compiled based on the previous activities conducted within ECOVINEGOALS projects and therefore represents the summary of short, mid and long term steps whose implementation would open a completely new perspective for the development of viticulture and viniculture in Crmnica, oriented towards ecological, integrated, organic and bio-dynamic systems.



# Ecological Vineyards Governance Activities for Landscape's Strategies

Deliverable T2.3.1

## LOCAL ACTION PLAN FOR CONSERVATION OF LANDSCAPE AND HABITAT IN VITICULTURE AREAS AND FOR VALORISATION OF ECOSYSTEM SERVICES

Responsible Partner: CIHEAM-MAICh

June 2022

1st Version



## **BASIC PROJECT INFORMATION:**

PROGRAMME CALL: INTERREG V-B Adriatic-Ionian ADRION

Project Acronym ECOVINEGOALS

Project Number: 866

Programme Priority Axis: 2

Start – End Date: 01.03.2020 – 31.08.2022

Total budget: EUR 1 939 505.59

ERDF: 1 399 759.25 IPA: 248 820.5

**Lead Partner Organisation: LAG Eastern Venice, Italy**

Url: [www.ecovinegoals.interregadrion.eu](http://www.ecovinegoals.interregadrion.eu)

## **DOCUMENT INFORMATION**

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<b>Dissemination Level</b>	PP

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June 2022

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## Project Summary

ECOVINEGOALS promotes sustainability and resilience in the winemaking industry by encouraging the transition of intensive viticulture towards agroecological management systems that protect natural habitats and landscapes, while reducing chemical and fossil fuel inputs and harmful emissions. The project aims to enhance stakeholders' skills in participatory local governance, to strengthen transnational cooperation and provide specific transnational instruments to promote, support and manage the agroecological transition.

### **Expected results**

- Sharing among partners in the ADRION countries of fundamental concepts and practices necessary for the transition from intensive viticulture management systems, towards agroecological management methods.
- Improvement of the participatory local governance skills of decision-makers and all other viticulture stakeholders, both public and private, to jointly develop and define strategies and plans that aim to protect natural habitats and rural landscapes.
- Transnational communication, cooperation, and exchange between regional authorities and civil society organizations concerning common objectives to protect vulnerable environments, to promote ecosystem services, to prevent or mitigate climate change, and to avoid social conflicts in land use.
- An increase in the number and quality of tools and strategies available to support the planning and management of the agroecological transition of viticulture systems in the region.

### **Partnership:**

<b>PP1- LP</b>	<b>LAG EASTERN VENICE, VEGAL (IT)</b>
PP2	Autonomous Province of Trento, PAT (IT)
PP3	Chamber of Agriculture and Forestry of Slovenia, KGZS-Zavod GO (SI)
PP4	Research Centre of the Slovenian Academy of Sciences and Arts, ZRC SAZU (SI)
PP5	Agency for Rural Development of Istria Ltd Pazin, AZRRI (HR)
PP6	Association for the promotion of employment, vocational training and education, INFORMO (HR)
PP7	Business Development Center Kragujevac, BDCKG (RS)
PP8	Foundation Business Start-up Center Bar, BSC BAR (ME)
PP9	Municipality of Bar, BAR (ME)
PP10	Mediterranean Agronomic Institute of Chania, CIHEAM MAICh (EL)

### Associated Partners (APs):

General Union Cisl Cultivators Venice (IT)
Bio district of production and biological community of central-eastern Venice - BIO VENICE (IT)
IAL - Innovation Learning Work S.r.l. - Social enterprise (IT)
AIAB-Italian Organic Agriculture Association (IT)
Agroecologiki SP (EL)
Municipality of Topola (RS)
Šumadija winemakers association (RS)
Ministry of Agriculture and Rural Development (HR)
Agroecology Europe (BL)

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## **1. BASIC BACKGROUND OF THE PILOT AREA: THE MUNICIPALITY OF ARCHANES ASTEROUSIA, HERAKLION**

The Municipality of Archanes-Asterousia occupies a semi-mountainous terrain. Its morphology is characterized by three zones: the mountainous zone with an altitude of over 400m, the semi-mountainous zone from 200m - 400m, and the lowland from 200m and below. The first two zones cover about 3/5 of the Municipality. The mountains of Giouchtas and part of the eastern mountain range of Asterousia stand at the north and south of the Region.

The area is characterized by a unique aesthetic value due to its special geomorphology as well as its ecological and natural characteristics. The entire extent of Asterousia consists of an area of particular natural beauty with alternating landscapes of small cultivated plateaus interspersed with wild areas that form aspects of high natural value, punctuated by small half-abandoned villages (Platanias, Paranifi, Prynias), where there is much variety to be appreciated. The panoramic view from the ancient Acropolis of Gortynas that dominates the Plain of Messara is another element to be considered when discussing the perceived value of the landscape. In Western Asterousia, there are a series of canyons with high aesthetic value that provide yet more variety. Together, the enormous variety of landscapes are home to an extremely diverse range of plants and animals.

The Municipality of Archanes-Asterousia is a predominantly agricultural region, with the most extensive class of land use being olive groves, with extensive natural grasslands/meadows being the second largest land use. Vineyards represent the third most common agricultural use of land in the municipality. Despite a relative decline that has seen the area under vines reduced from 4,688.27 ha (or 13.85% of the region's total area) in 1990 to 3,839.32 ha (or 11.35% of the total area) in 2018, the municipality remains among the leading grape-producing regions of the island of Crete. Of particular note is the increase in built-up land (from 208.49 ha to 351.41 ha) that has been recorded between 1990 and 2018, while there has also been a significant increase in the area used for arable cultivation over the same period (from 1,516.64 ha in 1990 to 2,380.76 ha in 2018).

The majority (about 72%) of the vineyards found in Archanes-Asterousia are located in the semi-mountainous zone, between altitudes of 200 and 400m, while 22% are found between 400 and 600m. The highest vineyards are located in the mountainous areas of Giouchtas and Asterousia, on a range of altitudes between 600 to 865m, but these represent only 3% of the vineyards of the region. The last 3% of vineyards can be found in areas with elevations of up to 200m. The biggest percentage of vineyards range on slopes of up to 5% (2.86°). 29% of vineyards are located in areas with a mean slope of 11 to 20% while another 26% of vineyards range between 6 to 10% mean slope. Fields with steeper slopes (21-65%) represent only 11% of the vineyards found in the region.

The aspect of a slope refers to the compass direction the slope faces (north, south, east, or west). Depending on the climate of the region, different aspects provide different benefits. About 35% of vineyards are located on eastern-facing slopes. 22% and 25% of vineyards can be found on southern-facing and western-facing slopes respectively, and only 18% are on northern-facing fields. The Mediterranean climate, characteristic of the island of Crete, means that the region of Archanes-Asterousia receives a large amount of solar energy. In Archanes-Asterousia, the majority of the vineyards (86%) receive an amount of solar radiation per year in excess of 1.647.000 WH/m<sup>2</sup>/year.

Concerning the changes in the municipality of Archanes-Asterousia for each of the individual land cover categories for the period 1990 to 2018, out of all the land cover classes, built-up land increased in size by almost 60% as of 2018, while arable land, vineyards, olive groves, natural grassland/meadows and transitional woodland/shrubs have been subject to continually interchanging land use over the past decades. Of the 2,380.76 ha that were arable land in 1990, 112.76 ha were converted into built-up land and 229.31 ha were developed into vineyards, while 52.16 ha were converted into olive groves. Regarding the overall decline in vineyards in the region from 1990 to 2018, around 70% have remained in the same class. The main changes in olive groves over the span of 28 years include 413.85 ha that were converted into arable land, 190.57 ha that were converted into vineyards, 13.40 ha into built up land, and 171.40 ha being replaced by other land uses.

In the period 1990-2020, the land occupied by vineyards in Archanes-Asterousia shrank by almost 20%. In fact, most of the vineyards in the area were planted before the year 2002. However, despite the decline seen since 1990, and the constant shifts in land use seen over the past 20 years, a small number of new vineyards continue to be planted in the municipality. As far as organic viticulture in the region is concerned, only 125 vineyards have been officially registered as organic cultivations. In recent years, organic viticulture has started to gain ground among farmers and the pioneers are now creating their own position in the market. As part of a greater whole however, the practice remains in its infancy.

As is typical for the rest of the island, vineyard plots in the Municipality of Archanes-Asterousia are small, with almost 80% of them having a size of 3000 m<sup>2</sup> (0.3ha) or less. By far the Municipal Unit with the most extensive viticultural activity is that of Nikos Kazantzakis, which contains half (50%) of all the municipality's vineyards. In absolute numbers, the Municipal Unit of Asterousia follows in second place with around a third (36%), with the Municipal Unit of Archanes coming last with 14%; yet, taking into account the scale of each Unit, the region of Archanes has by far the most intensive viticultural activity.

The areas of Giouchtas and Asterousia represent only a small percentage of the prefecture's vine cultivation. Nonetheless, the high level of naturalness of these areas offer an inherent biodiversity value unique to the region. As a predominantly agricultural region, Archanes-Asterousia is covered mostly with

agricultural cultivations. Despite this, the regions of Giouchtas to the north and the Asterousia Mountains to the south offer an abundance of natural and semi-natural landscapes within the municipality. There are 400 species of plants in Giouchtas, of which 21 are endemic to Crete and 10 are endemic to Crete and Karpathos. Many of the plants have medicinal properties. In the gorges of the area there are two types of ecosystems: those in the riverbeds, and those ecosystems located on the slopes rising from the rivers.

Regarding geology, most of the vineyards in Archanes-Asterousia are located in areas of Neogene and Quaternary sediments that form the majority of the region's geomorphology. As far as climate is concerned, Crete has a temperate Mediterranean climate. It belongs to two climatic zones, the Mediterranean and the North African, and is characterized by mild, rainy winters and hot, dry summers. The basic characteristics of the climatic conditions in Archanes-Asterousia over the period 2009–2019 are presented below. The mean temperature during the period was 17.4 °C, while total precipitation amounted to 702mm per year. With regards to air temperature variations in Archanes-Asterousia, the data shows that during the wet (cold and rainy) season from October to April, the coldest months are January and February. The mean minimum air temperature in these months varies between 9 - 11 °C. The period of excess rainfall is observed from late November to late February with the levels of precipitation reaching 150mm per month. During the dry season, from mid-April to late September, the hottest months are July and August and the mean temperatures vary between 25 - 26 °C.

Crete in general, and Heraklion more than any other Prefecture, is known as one of the most important wine-producing territories of Greece, with 4,000-year-old winemaking tradition dating back to the Minoan Period. The region is known for its high-quality wines and famous wine-making grape varieties. The World's oldest grape-pressing pit was discovered at Vathypetro, and the art of wine-making reached perhaps its highest form in the period between the 1st and 2nd centuries A.D., when Cretan wines sealed in artistic vases were exported throughout the Mediterranean, but also during the period of Venetian rule (12th –16th century) when a Cretan wine, Malvasia, reached the peak of its fame.

Today, the Municipality of Archanes-Asterousia has numerous wineries open to visitors, offering guided tours and tastings. At the wineries and at the Municipal Hall, printed material detailing the Cretan 'Wine Routes' can be found to guide visitors on a circular tour of the hinterland, travelling through the entire wine-making zone of the prefecture, and providing the opportunity to visit many representative viticulture and winemaking zones in the territory.

## 2. STRENGTHS AND WEAKNESSES OF THE PILOT AREA: MUNICIPALITY OF ARCHANES ASTEROUSIA

### 2.1 Main strengths of the local viticulture

#### STRENGTHS

- Although declining since 1990, through the constant shifts in land use over the past 20 years, **new vineyards continue to be planted in the municipality.**
- In recent years, **organic vineyards have emerged** and are creating their own position in the market.
- **29% of vineyards are located in areas with a mean slope** of 11 to 20% while another 26% of vineyards range between 6 to 10% mean slope. This is a strong point - as a slight to moderate slope can be beneficial by accelerating cold air drainage - an important protection against spring frosts.
- **About 35% of vineyards are located on eastern-facing slopes of a relatively high percentage which is positive as the vineyards receive the first rays of sunlight** in the early morning, warming the canopies and the soil and drying the moisture that has accumulated on the vine during the night.
- **The majority of the vineyards (86%) receive a high amount of solar radiation** per year in excess of 1.647.000 WH/m<sup>2</sup>/year.
- **The area offers a rich natural and agricultural environment**, which has been formed over time and is now a comparative advantage for tourism and local development in general.
- Elements of agricultural heritage, along with the living customs and traditions that are preserved in many settlements, compose **a unique “mosaic” of culture.**
- The boundaries of the PDO Archanes zone begin in an area of historic significance (somewhat farther south of the Knossos archeological site), ending south at Vathipetro where archeological excavations have brought to light one of the oldest Minoan (2nd millennium BC) wine presses on Crete. The **Minoan mansion or villa at Vathipetro is of a toparch construction**, and has the characteristics of a “small palace”, including a grape press installation in the south wing and an olive press found in the yard.
- There is a **strong political will** expressed by the Region of Crete -Strategic Planning of the Region of Crete for the period 2020-2023 - **to support the conservation of the natural and cultural heritage** of the area.
- **The Wines of Crete network** has led the Cretan winemaking industry on a new growth path following the introduction of an approach of cooperation and synergy, since 2006.
- Existence of a **substantial number of wineries that function very professionally by producing unique wines while organizing tours, wine tasting as well as other activities/events** that connect tourism with viticulture.
- The gender composition of the population of the region of Archanes-Asterousia is remarkably balanced.
- **Mutual interest for the collaboration** between the viticulture and wine making sector and tourism
- **Existence of a substantial number of research and academic Institutes and research organizations** in the area with a strong interest in viticulture, especially in the revitalization of indigenous varieties.
- **Mutual interest of collaboration between viticulture and wine-making** and the research and academic institutes of the area

- **Rich gastronomy and quality local products** that can be used in synergy with wine tourism.
- **Large number of indigenous / local varieties**, well adapted in the local soil and climatic conditions, with great potential for the production of high-quality wines with very special attributes.

## WEAKNESSES

- ✓ There has been a **reduction in vineyard area by almost 20%** in Archanes-Asterousia during the period 1990-2020.
- ✓ **Only 125 vineyards have been officially registered as organic cultivations.** The practice of organic viticulture is still in its infancy.
- ✓ **Of all the land cover classes, built-up land has increased most steadily in size** (by almost 60% since 2018)
- ✓ **There has been continual land use interchanges** among arable land, vineyards, olive groves, natural pastures and transitional woodlands/shrubs over the past decades.
- ✓ **Vineyard plots in the Municipality of Archanes-Asterousia are small**, with almost 80% ranging from 0 - 3000 m<sup>2</sup> (0.3ha). Land fragmentation is one of the main structural weaknesses of the agricultural sector in Greece in general.
- ✓ **The vineyards at highest altitude are located on the mountains of Giouchtas and Asterousia**, between 600 to 865m, but **represent only 3% of the vineyards** of the region. This small percentage is probably a weakness as high elevations receive greater intensity of sunlight than lower elevations at the same latitude. Moreover, the average temperature decreases by 0.7°C for every 100-meter increase in altitude. So, in warmer regions, high altitude is beneficial to keep the vines cool.
- ✓ **The areas of Giouchtas and Asterousia represent only a small percentage of the prefecture's vine cultivation.** Thus, viticulture in this area doesn't seem to be very much connected with the rich naturalness of these regions that offer an inherent biodiversity value.
- ✓ There are **difficulties in communicating the agroecological practices and concepts**, and most important their connection with the market price / added value of the final product.
- ✓ **A steady decline in the population of the region** has occurred since 1961, with inhabitants decreasing by almost one fifth up to the year 2011,
- ✓ **Lack of accurate, systematic and reliable data** (land use, size of vineyards, size of farm land) to report the current landscape and the changes occurring, and to support the decision-making.
- ✓ **The age structure of the region shows an aging population** (with the majority of the population being above 40 (56%) years old while the "older age groups" (65+) constitute one third of the total population (around 33%))
- ✓ **More and more people are abandoning agriculture** and shifting their economic interests elsewhere (as of 2011)
- ✓ **Inadequate collaboration of the winemaking sector with the producers of other high quality local products** (i.e. dairy produce) that could be used for wine pairing.
- ✓ **Abandonment and desertification of villages**
- ✓ **Inadequate support and consultation for farmers/viticulturalists/wine makers**, from the public/regional authorities

- ✓ **Lack of trained workers** to perform specific jobs in vineyards.

### **3. BASIC BACKGROUND OF THE PILOT AREA: THE MUNICIPALITY OF PLATANIAS – CRETE, GREECE**

The Municipality of Platanias is located west of the city of Chania at a distance of about 11 km. The population amounts to 5,225 inhabitants and its area is 74,932 acres. It is one of the most vibrant prefectures with huge tourist development, but also a significant agricultural production of citrus, olive oil, avocado, grapes, vegetables, plus plant nurseries, etc. Most of the beaches of the Municipality are organized, while among them are a few of the most popular and cosmopolitan of the island that have been distinguished by the award of Blue Flags. Due to its many attractions, the Municipality is a pole of attraction for tourists and locals 24 hours a day. Within the boundaries of the Municipality, there is a beach where the loggerhead turtles lay their eggs every year and for this reason the Association for the Protection of the Sea Turtle “ARCHELON” has been active in the area since 1989. As a result of their excellent touristic infrastructure, the coastal villages of Platanias, Gerani, Pyrgos Psilonerou and Maleme are very highly developed and host dozens of hotels, shops, restaurants and nightclubs. Platanias itself is a picturesque village perched on the slopes of a hill, with amazing views of the bay of Chania, while in Maleme there is the well-known German Cemetery of World War II. Moreover, visitors have the opportunity to tour the wonderful villages of the hinterland, where in contrast to the coast, little has changed over the passage of time and an incomparable natural beauty coexists with an authentic working rurality.

Natural grassland/meadows form the most extensive land cover class. They comprised over 36.36% of the total area of Platanias in 1990 and 30.91 % in 2018. Olive groves constitute another main land use of the region, with olive groves for the production of oil covering most of the agricultural land of the municipality. Apart from olives, there is intense cultivation of citrus fruits, mainly oranges (about 20% of the agricultural land) and to a lesser extent, mandarins and lemons. Between 1990 and 2018, it seems that different preferences in cultivation affected fruit tree plantations as a substantial number of hectares were converted into olive groves, while more recently the cultivation of avocado was introduced and has increased substantially. Of particular note is the near-doubling in the area of built-up land that occurred between 1990 and 2018, from 332.29 ha to 606.35 ha. As the northern coastline of the region gradually became one of the main touristic destinations in the prefecture of Chania, the region underwent an intensive wave of urbanization. This trend is also apparent in the very marked decrease in arable land in the region, especially near the coastline, as fields have given way to houses, apartments and hotels.

As far as the rate/extent of change is concerned, the production of olive oil in this municipality is among the most important agricultural productions on the island of Crete, and continues to increase. In 1990 olive

groves covered around 28% of the total area of the municipality, while by 2018 this area had increased to about 32%. During the period 1990-2018 only a small percentage of olive groves was converted to another type of land use (only very small percentages gave way to built-up land, arable land and other uses).

The exceptionally rich naturalness seen in the 'Lefka Ori' at the south of the municipality (the 'White Mountains' constitute a large part of the municipality's total area) and in the Rodopou peninsula to the north make transitional woodland/shrubs the main feature of the municipality's landscape, comprising 17,754 ha of land cover in 1990. As of 2018, around 15,000 ha remained unchanged, while a large percentage (almost 2,000ha) had been converted into meadows through the continuous degradation of natural lands, and a further 1,000ha converted into olive groves, forests and various other land uses. Lastly of note is that of the 1,577.22 ha of arable land in 1990, 259.64 ha had been converted into built-up land, highlighting the continuous development of the urban fabric in this region as economic interest steadily abandons the primary sector, while another 256.21 ha were converted into other (non-urban) types of land use.

In the municipality of Platanias, vineyards cover around 451.5 ha. The cultivation of vines in the area of the Municipality until the end of 1980 occupied second place in economic and social importance. However, with the general application, without a plan and a long-term perspective for viticulture, a large number of the vineyards have been uprooted since 1989 and the vast majority have been replaced by olives. 93% of the vines are wine vines with the main variety being the Roman, which is largely processed to produce traditional drinks such as 'local' wine and tsikoudia (raki). Regarding organic grape production, it seems that this trend hasn't yet reached local viticulturists, as in 2021, only 12 vineyards had been officially registered as being organically cultivated.

Agriculture in Crete is characterized by relatively small plots and scattered land ownership. This is especially obvious regarding viticulture in the Municipality of Platanias as almost all of the vineyards (93.1%) are of up to 3000 m<sup>2</sup> (0.3ha). The majority of vineyards in the Municipality are located in the Municipal Units of Mousouroi and Kolymvari, which support 64% of the regions' total vineyards between them. They are followed by the Municipal Unit of Kolymvari with 20% of total vineyards, while the Municipal Unit of Platanias which is mostly occupied by the tourist industry is home to 16%.

In Platanias, most of the vineyards, around 61%, are located at an altitude of 400m or below. 23% range between 400 and 600m, while the highest vineyards in elevation are located in altitudes between 600 to 768m and represent only 6% of the total vineyards of the region. The largest percentage of vineyards in Platanias range on slopes of 21-65%. 32% of vineyards are located in areas with a mean slope of 11 to 20% while another 20% of them range between 6 to 10% mean slope. Only 13% of grape fields can be found in areas of 5% mean slope or less. About 29% of vineyards are located on eastern-facing slopes. 17% and 28% can be found on southern-facing and western-facing slopes respectively, while 25% are on northern-facing

fields. Due to its characteristic Mediterranean climate, the area of Platánias receives a large amount of solar energy. Most of the vineyards (92%) receive an amount of solar radiation per year in excess of 1,637,000 WH/m<sup>2</sup>/year. Only 8% receive levels of solar radiation of 1,628,018 – 1,637,000 WH /m<sup>2</sup>/year, mostly those located in the mountainous regions of the Mousouroi Municipal Unit.

The majority of viticultural activity in the area doesn't take place within protected areas. The high altitude mountainous terrain of Lefka Ori does not provide a suitable environment for the cultivation of vines. In the humid areas of the Fasa valley and Keritis stream, only a few scattered vineyards can be found. Along the inland fringes of the coastal areas of Platánias, Maleme as well as the Rodopou peninsula, the largest concentration of vineyards within the prefecture are encountered. The touristic intensity that characterizes these areas can act both in synergy and in conflict with actions for landscape conservation and diversification. With the rich biodiversity of the Lefka Ori on its south borders, the lush peninsula of Rodopou on the north and the Fasa valley and Keritis stream cutting across the region, the municipality of Platánias is a hotbed of high naturalness and home to extremely diverse flora.

Crete has a temperate Mediterranean climate. It belongs to two climatic zones, the Mediterranean and the North African, and is characterized by mild, rainy winters and hot, dry summers. The mean temperature during that period is 18.9 °C while total precipitation is 651 mm. Regarding air temperature variations in Platánias, the data shows that during the wet season from September to March, the coldest months are January and February. The mean minimum air temperature in these months varies between 13-16 °C. The period of excess rainfall is observed from October to mid-November and again from late December to early February with the levels of precipitation reaching 138mm/month. During the dry season, from March to September, the hottest months are July and August with a mean temperature between 25-26 °C.

The Municipality of Platánias makes an ideal destination for wine lovers. For over 3,500 years, the residents of the area have been cultivating vines and producing wine; the area's geography and rich soil favour viticulture. As a result of the highly diverse landscapes, relief, altitudes, temperatures and soil properties, all grape varieties tend to take on new characteristics, with the result that the wines produced have unique tastes and aromas, and viticulturalists are able to produce very particular wines.

In the Chania region, notable wineries including the Loupakis Estate, the Dourakis Winery in Kissamos, the Karavitakis Vineyards in Kolymvari, the Manousakis Wineries famous for their Nostos label, the Aghia Triada Tzagarolon Monastery, the Anoskeli Winery in Platánias and the Pnevmatikakis Winery in Drapanias, all provide the opportunity for visits to their sites, and tasting experiences in quite remarkable natural settings



## **4. STRENGTHS AND WEAKNESSES OF THE PILOT AREA: MUNICIPALITY OF PLATANIAS**

### **4.1 Main strengths of the local viticulture**

#### **STRENGTHS**

- ✓ **The area, especially the northern coastline is visited by around 1 million tourists every summer** with many positive/economic effects and potentials.
- ✓ **The largest percentage of vineyards in Platanias ranges on slopes of 21-65%.** 32% of vineyards are located in areas with a mean slope of 11 to 20% while another 20% range between 6 to 10% mean slope. Perhaps a strong point - as percentages show - is a slight or moderate degree of inclination of the land **that can be beneficial for a vineyard as it affects air drainage**, protecting against frost or cooling during the hot months.
- ✓ **About 29% of vineyards are located on eastern-facing slopes.** Perhaps this high percentage is a **positive as the vineyards in eastern aspects receive the first rays of sunlight** in the early morning, warming the canopies and the soil, and drying the moisture that accumulates in the vine during the night.
- ✓ **The area of Platanias receives a large amount of solar energy.** Most of the vineyards (92%) receive an amount of solar radiation per year in excess of 1.637.000 WH/m<sup>2</sup>/year, which is relatively high; the vine is a crop that benefits from high levels of solar radiation.
- ✓ **The touristic intensity that characterizes these areas can act both in synergy and in conflict with actions for landscape conservation and diversification.**
- ✓ **Aside from a rich natural environment, the municipality of Platanias offers a plethora of cultural wealth, typical of the island of Crete**
- ✓ **Within twenty years since 1991, there has been a steady upturn in the population of Platanias.**
- ✓ **Over the last decade, the growth of the touristic industry has led an influx of population movement towards the northern coast of the region and the Municipal Unit of Platanias.**
- ✓ **The gender composition of the population of the Municipality of Platanias is balanced**, with only the Municipal Unit of Platanias showing a relatively larger amount of male population
- ✓ **The area produces high quality local products (olive oil, citrus fruits, etc) that can be paired with wine.**
- ✓ **The area has a very long tradition in viticulture and wine making, with a large number of indigenous varieties.**

## **WEAKNESSES**

- ✓ The region has undergone an **intensive wave of urbanization** – a doubling in size of built-up land between 1990 and 2018, from 332.29ha to 606.35ha
- ✓ **Distinct decrease of arable land in the region**, especially in the coastline, as fields gave way to houses and apartments.
- ✓ **Continuous development of the urban fabric** in the region as economic interests gradually abandon the primary sector (out of 1.577,22ha of arable land in 1990, 259,64ha were converted into built-up land)
- ✓ **A large number of the vineyards since 1989 have been uprooted** and the vast majority of the area has been replaced by olive or more recently by avocado trees.
- ✓ Regarding **organic production of grapes**, it seems that the trend hasn't caught up with local **viticulturists** (as of 2021, only 12 vineyards have been officially registered as under organic cultivation)
- ✓ Agriculture in Crete is characterized by **very small plots** and **scattered land ownership**. Regarding viticulture in the Municipality of Platanias, almost all vineyards (93.1%) range in size from 3000 m<sup>2</sup> (0.3ha) and below. Land fragmentation is seen as a structural weakness of the viticulture in Crete.
- ✓ In Platanias, most of the vineyards, around 61% (a very high percentage), are located in an altitude of 400m or below, which is a weakness as high elevations receive greater intensity of sunlight than lower elevations at the same latitude. Moreover, the average temperature decreases by 0.7°C for every 100-meter increase in altitude. So, in warmer regions, it is beneficial to keep the vines cool.
- ✓ The majority of viticultural activity in the prefecture doesn't take place within protected areas.
- ✓ **The touristic intensity that characterizes these areas can act both in synergy and in conflict with actions for landscape conservation and diversification.**
- ✓ **The age structure of the region shows a mostly aging population** (with the majority of the population being above 40 years old), while the "older age groups" (65+) constitute around 25% of the population
- ✓ **By 2011, people abandoned the primary sector in a dramatic way** (30% of the working population remain) and shifted their economic interests towards the tertiary economic sector.
- ✓ **The region has undergone an intensive wave of urbanization**, as the northern coastline of the region gradually became one of the main touristic destinations of the prefecture of Chania. Besides being positive for the tourism economy, it is also negative for the rural area

*Table 1: Strengths and Weaknesses in the Viticulture of Platanias*

## 5. OBJECTIVES OF THE LOCAL ACTION PLANS (LAP) FOR CONSERVATION OF LANDSCAPE AND HABITAT

In 1993, UNESCO included in the World Heritage List, cultural landscapes that include not only static landscapes but dynamic landscapes as well, that have generated and obtained their current form from social, religious or economic impacts on the natural environment, and which continue to evolve.

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*The Committee acknowledged that cultural landscapes represent the "combined works of nature and of man" designated in Article 1 of the Convention. They are illustrative of the evolution of human society and settlement over time, under the influence of the physical constraints and/or opportunities presented by their natural environment and of successive social, economic and cultural forces, both external and internal. The term "cultural landscape" embraces a diversity of manifestations of the interaction between humankind and its natural environment. Cultural landscapes often reflect specific techniques of sustainable land use, considering the characteristics and limits of the natural environment they are established in, and a specific spiritual relation to nature. Protection of cultural landscapes can contribute to modern techniques of sustainable land use and can maintain or enhance natural values in the landscape. The continued existence of traditional forms of land use supports biological diversity in many regions of the world. The protection of traditional cultural landscapes is therefore helpful in maintaining biological diversity.*

*Cultural Landscapes, UNESCO, World Heritage Convention*  
<https://whc.unesco.org/en/culturallandscape/>

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Landscape is increasingly conceptualized as a resource. This approach gained international recognition when it was adopted by the European Landscape Convention (Council of Europe 2000), which asserts that landscape “constitutes a resource favourable to economic activity and whose protection, management and planning can contribute to job creation” <https://www.thecommonsjournal.org/article/10.18352/jjc.745/> (From landscape resources to landscape commons: focusing on the non-utility values of landscape, Authors: Jean-David Gerber, Gérald Hess, 2017).

By considering the complexity as well as the importance of the landscape and biodiversity conservation, the Local Action Plans (LAPs) for Conservation of Landscape and Habitat seek to assist/consult local governments, policymakers in general and all stakeholder groups, to address global biodiversity loss and ecosystem degradation, but also to understand the challenges and dynamics, and benefit the most by all opportunities. By acting for biodiversity, local government/citizens can expect to reap a wealth of benefits, whilst supporting the sustainability of the area. Landscape is a product of economic activities and an asset associated with a society's productivity levels and the relations of production. By interpreting landscape design as asset

management, it is important to build up and coordinate very well designed local action plans to manage the benefits to all stakeholders at different stages, through negotiation of design options.

In that sense, a Local Action Plan (LAP) as a tool to efficiently and effectively manage the landscape, with a guiding set of specific actions to achieve optimal and realistic management and conservation of the landscape and the biodiversity, will ensure conservation of the ecosystem services, while taking into account the interests of all stakeholders.

Generally speaking, the management of vineyard landscapes should include regulatory preservation, and also ways of ensuring:

- the continuation of economic activities that sustain the site (such as the promotion of high quality products)
- the provision of economic benefits for site maintenance
- the sharing of know-how among stakeholders and their transmission to future generations
- the acceptance of a common culture and identity by all stakeholders.

The Region of Crete realized the importance of the natural and cultural landscape and included in the Operational Program of the Region of Crete 2020-2023 – *Strategic Planning* the following Regional Spatial Framework priorities for the protection, preservation and promotion of the single natural and cultural heritage:

- the creation and implementation of a program of targeted spatial actions that highlight the unbreakable relationship between physical and cultural identity and the historicity of each area
- the planning and implementation of actions of a synthetic nature, which are also linked to the reconstruction of the mountainous massifs and the numerous traditional settlements, most of the which are not even characterized
- the immediate promotion of pilot applications, without simultaneously abandoning efforts for the reconstruction of the overall space
- the unified treatment of the European Pedestrian Path E4 in combination with the zone development of mild forms of tourism and multi-activities in mountainous and semi-mountainous areas and in the settlements
- the approval of Special Management Plan Studies, which have already been prepared for the Region, as well as the preparation and approval of Management Plans and Protection Plans, for all areas of the Natura 2000 network, as well as the establishment of Management Bodies, in accordance with its relevant promoted policy competent ministry
- the continuation with an emphasis and intensity of the policy on the characterization, promotion and protection of young people of traditional and notable settlements, as well as for the demarcation of new archaeological sites and monumental - historical collections and elements
- the functional integration - in the overall grid of Landscape Units and their individual elements - of the already declared or to be declared Geoparks and the creation of geocultural routes, setting up local networks of visiting destinations in reference to E4 and other walking routes
- the establishment of special financial incentives for the preservation of traditional activities, with an ecological approach and management, and finally
- the adoption of specific measures to stop deforestation and the implementation of natural policies such as the direct institutional protection of the "natural" heritage - forests, flora, fauna and landscapes - as well as the undertaking of upgrade actions and effective protection measures (soil erosion, deforestation, desertification, salinization, etc.).

*Operational Program of the Region of Crete 2020-2023 – Strategic Planning*

For the Municipality of Archanes-Asterousia and the Municipality of Platanias, the key objectives of the LAPs developed considering the landscape analysis, the Regional Strategic Planning and the Strategic Planning for each Municipality, as well as grey literature (local newspapers, etc) and also discussions with stakeholders, are:

***1. Management / Conservation of the vineyards and the natural resources of the area in general in a long-term sustainable and environmentally-friendly manner***

This objective summarizes the activities related to the incorporation of environmental protection principles into viticulture and the wine making industry and the adoption of agro-ecological/organic/sustainable practices. Furthermore, it focuses on the comprehensive protection of natural resources, such as: prevention of soil degradation and desertification, and other means of pollution; prevention of risks related to the loss of biodiversity and genetic resources in viticulture; valorisation of preserved landscapes throughout the development of certified organic agriculture; preservation of traditional, but effective and sustainable, farming practices, etc.

***2. Ensuring an adequate income and an adequate standard of living for the rural population together with the preservation of the special values of the viticultural landscapes.***

This objective summarizes the activities related to ensure an adequate source of income for the people living in rural viticulture areas as well as their living conditions in terms of enhancing economic and social activities, aiming towards keeping the population and especially the young people to remain in the villages. Furthermore, the objective is dedicated towards the development of areas with less favourable conditions for economic activities, development of rural infrastructure (regulating landfills, securing electrical network, developing water supply and sewage network, paving the public roads, etc.), diversifying economic activities and increasing income in rural regions, with special emphasis on different forms of tourism, connecting viticulture with other economic activities and the special characteristics of the area, the protection and preservation of cultural heritage, and the ambient characteristics of the areas.

**3. *Ensuring traceable high-quality grapes and wine-making production and services connected with the special pedoclimatic conditions and the landscape of the area, leading to increasing competitiveness and recognizability.***

This objective focuses on the improvement, the standardization of the quality of the final products (grape and wine) and their connection with the special characteristics of the area through the implementation of international quality standards, the introduction of a traceability system, the promotion and the protection of specific characteristics of grapevine production (i.e. protection of geographical indication, cultivation of local varieties and production of unique blended wines, etc). This objective also envisages networking and collaboration for the production of constantly larger quantities, the mitigation of problems related to the scattered and fragmented production, better technical equipment, better efficiency in input supply, more successful access to credit funds, professional training and education, attracting youth to initiate their own business in this sector, strengthening marketing skills. etc.

**4. *Sharing of know-how and sensitization among stakeholders in regard to the importance of the cultural landscape of the area.***

The countryside has for a long time been considered of high value but agricultural national and regional policy tended to focus only on the economic aspects while all natural and historical/cultural values as well as the intrinsic/aesthetic values were neglected. On another note, the preservers of the heritage had until recently focused on archaeological sites and monuments, dealing with the landscape more as a background than as an important element.

However, landscape is increasingly conceptualized as a resource, and as such, important for the future of the area and its inhabitants. Sensitization of all stakeholders and creation and sharing of knowledge to support the importance and the special value of the cultural landscapes is a stepping stone for the success of every local action plan towards the landscape preservation. It is also important to understand that the study areas are very popular touristic sites. This is why the matter of the landscape being perceived as aesthetically pleasing and worth visiting has to be considered, along with the fact that the inhabitants of these areas, who are also those in charge of maintaining the substance of the landscape, especially in a large cultural landscape, do not always share the views of tourists-visitors.

Last but not least, the next section presents the Local Action Plans developed for the landscape and biodiversity of the vineyard study areas of Crete. It is important to mention that participatory landscape management is a topic of great importance because of how it increases community interest. The active participation of the whole community and the bottom approach in the decision-making process is a fundamental aspect for the active protection of an area where the locals themselves recognize its value, as these locals regain aspects of their cultural identity that are associated with the area.

## 6. SHORT-TERM STEPS FOR CONSERVATION OF LANDSCAPE AND HABITAT IN VITICULTURE AREAS AND FOR VALORIZATION OF ECOSYSTEM SERVICES

**Table 1: List of short-term steps (1-2 years), i.e. activities for conservation of landscape and habitat in the viticulture areas of the Municipalities Archanes Asterousia and Platanias.**

<b>EFFICIENT AND SUSTAINABLE USE OF NATURAL RESOURCES (SOIL, CLIMATE OF THE AREA, WATER)</b>
<b>RESTORATION OF DRY-STONE WALLS AND TERRACES</b>
<b>ACTIVITIES / ANNUAL EVENTS WITHIN LOCAL COMMUNITY TO RAISE AWARENESS REGARDING LANDSCAPE PROTECTION PROCESSES AND FOSTER ACTIVISM.</b>

<b>Title</b>	<b>EFFICIENT AND SUSTAINABLE USE OF NATURAL RESOURCES (SOIL, CLIMATE OF THE AREA, WATER) -</b>	<b>RESTORATION OF DRY-STONE WALLS AND TERRACES</b>	<b>ACTIVITIES / ANNUAL EVENTS WITHIN LOCAL COMMUNITY TO RAISE AWARENESS REGARDING LANDSCAPE PROTECTION PROCESSES AND FOSTER ACTIVISM.</b>
<b>Time Frame: Short, Medium, Long</b>	Short - Continuous process	Short - 2 years +	Short - Continuous process
	The activity involves all actions undertaken to encourage and support the application of agroecological practices that can be used in viticulture but also in other cultivations for an efficient and sustainable use of natural resources. The list of agroecological practices are shared with the farmers/viticulturalists/agronomists and all competent authorities	Farmers are encouraged and supported in repairing stone walls and planting vineyards in terraces and they are informed about their importance in regard to the landscape and biodiversity conservation. Organisation of trainings in regard to the techniques used for	Organisation of events, trainings, round tables, workshops; games for teenagers, competitions, etc addressed to all stakeholders in the study areas in order to make them aware of the importance of the cultural landscape and the Natura 2000 sites. Special emphasis will be placed on

	who may support and encourage their adoption.	building up stone walls and for planting vineyards in terraces. Support is also provided for the replanting and cultivation of abandoned vineyards planted in terraces.	the biodiversity at the vineyards and on the practices applied for the landscape enhancement and biodiversity conservation.  Awareness-raising is closely linked to the prevention of overgrowing and the decisions taken in regard to the land use.
<b>Responsible person/Institution</b>	Directorate of Agricultural Development; Research and Academic Institutes of the area; Laboratories for soil and leaf analysis; Extension Services; Cooperatives/networks of viticulturists	Associations of grapevine growers and wine producers; Department for Technical Support of the Municipalities.	Municipality; Regional Authorities; Educational and Research Institutes; Technical University; Natural History Museum
<b>Objectives</b>	<b><i>1. Management / Conservation of the vineyards and the natural resources</i></b>	<b><i>1. Management / Conservation of the vineyards and the natural resources</i></b>	<b><i>4. Sharing of know-how and sensitization among stakeholders and 2. Ensuring good standards of living</i></b>
<b>Expected results</b>	Improved crop quality; Increased plant tolerance to diseases; Facilitate nutrient assimilation, translocation and use; Enhanced quality attributes of the final product; More efficient water usage; Enhanced soil fertility; Decrease of fertilisers and other inputs; improved soil fertility.	Maintained landscape beauty and natural diversity; Conserved historical (cultural) heritage of the territory; Preserved quality of the terraced landscaped ; Creating ideal environment for the flora and a refuge for multiple animals – Proliferation of autochthonous flora and fauna; Increased environmental sustainability of hilly agro-ecosystem of high landscape value	Increase the knowledge on the special characteristics of the area; Sensitisation; Protection of all resources; Photographic surveys with shooting points both for the whole area and for the main assets related to it; Tourism promotion and agrifood promotion events already in place; initiatives organised by the local community; development of a community of practice

<b>Indicators</b>	Share of total irrigated grapevine area; Changes in total agricultural water used (m3) for irrigation; Percentage of nutrients output to nutrients input; Increase in the number of grape producers that perform soil and leaf analysis	Percentage of repaired dry stone walls per year; Number of people trained in domain of traditional techniques of dry stone wall conservation; Number of vineyards that were abandoned and are now restored; Number of vineyards that are now planted in the terraces	Number of events focusing on specific conservation areas; Number of "viewpoints" established in the area; Number of events related to the landscape valorisation and conservation (i.e. photograph or other kind of competition); Number of events and number of participants in events related with the landscape and the vineyards/wine making; Wine tasting; Games in the vineyards: playing in the vineyards etc., with a number of students; Number of events addressed to schoolchildren / teenagers
<b>Key stakeholders/partners involved</b>	Ministry of Rural Development and Food - Directorate of Forestry and Water Management; Associations of grapevine growers and wine producers; Municipality of Archanes-Asterousia	<ul style="list-style-type: none"> <li>o Associations of grapevine growers and wine producers</li> <li>o Ministry of Agriculture, Forestry and Water Management</li> <li>o Municipality of Archanes-Asterousia</li> <li>o Associations of grapevine growers and wine producers</li> </ul>	Municipality; Cultural associations; Tourism operators; Association of Hotel Owners
<b>Potential resources</b>	Budget of national and local authorities/EU grants /private - business grants	Budget of national and local authorities/EU grants /private - business grants	
<b>Potential transfer of good practices</b>	All practices	<p>B.S.7 Maintenance of traditional elements of Winescape – Dry stone walls</p> <p>B.S.11 Mechanical inter-row weed control in vineyard</p> <p>B.S.27 Erosion prevention</p>	

<p><b>Potential risks and obstacles</b></p>	<p>Unwillingness of farmers to change practices; Insufficient supply of high quality contemporary irrigation equipment and spare parts; High cost of laboratory analysis; Uncertain climatic characteristics; Insufficient support by the stakeholders involved</p>	<p>Inadequate knowledge of traditional techniques related to dry-stone wall conservation</p>	
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## **7. MID-TERM STEPS FOR CONSERVATION OF LANDSCAPE AND HABITAT IN VITICULTURE AREAS AND FOR VALORIZATION OF ECOSYSTEM SERVICES**

**Table 2: List of mid-term steps (3-5 years), i.e. activities for conservation of landscape and habitat in the viticulture area of the Municipality of Archanes Asterousia and Platanias**

<b>PRODUCTION OF LOCAL HIGH QUALITY WINE CONNECTED WITH THE CHARACTERISTICS OF THE SPECIFIC AREA</b>
<b>DEVELOPMENT AND IMPROVEMENT OF INFRASTRUCTURE TO SUPPORT WINE TOURISM</b>
<b>NETWORKING AND COLLABORATION AMONG ACTORS INVOLVED IN DIFFERENT ECONOMIC SECTORS TO FURTHER PRESERVE BUT ALSO ENHANCE THE LANDSCAPE</b>
<b>FURTHER DEVELOPMENT OF WINE ROUTES CONNECTED WITH NATURAL /CULTURAL / MONUMENTAL SITES OF HIGH INTEREST</b>

<b>Title</b>	PRODUCTION AND MARKETING OF LOCAL HIGH-QUALITY WINE CONNECTED WITH THE CHARACTERISTICS OF THE SPECIFIC AREA	DEVELOPMENT AND IMPROVEMENT OF INFRASTRUCTURE TO SUPPORT WINE TOURISM	NETWORKING AND COLLABORATION AMONG ACTORS INVOLVED IN DIFFERENT ECONOMIC SECTORS TO FURTHER PRESERVE BUT ALSO ENHANCE THE LANDSCAPE	FURTHER DEVELOPMENT OF WINE ROUTES CONNECTED WITH NATURAL /CULTURAL / MONUMENTAL SITES OF HIGH INTEREST
<b>Time Frame: Short, Medium, Long</b>	Midterm - Continuous	Midterm - Continuous	Midterm - Continuous	Midterm - Continuous
<b>Description</b>	The activity includes two main axes: 1. actions undertaken to create a local identity / brand name based on the special landscape and other environmental assets of the area, in relation to the production of high-quality local products and 2. support the viticulturalists to choose /plant local/indigenous grape varieties	Infrastructure (safe accessibility, road system, wi-fi, etc) is certainly a requirement for the development of wine tourism in hilly areas. However sustainable wine tourism business practices are a key issue for all actors involved. Competent authorities hold responsibility in improving/creating infrastructure that may facilitate the development of wine tourism and other diversified activities without jeopardizing the environmental sustainability.	Many initiatives organised in collaboration with actors involved in tourism, wine making industry, farmers (including viticulturists), etc towards the landscape and biodiversity conservation on the one hand and the provision of a number of diversified local products and services based on a healthy and sustainable environment – ecosystem (i.e recreational activities, tours, horse riding, cooking experiences, landscape observation, etc).	Actions included are: Analyses of the route system and tourist offer; Analysis of tourism facilities and vineyards; Facilities mapping; More effectively meeting the needs and visitors' requirements for data and information for the region and its resources, and enhancing the wine tourist experience. Development of new wine routes connected with visits in sites of specific environmental, cultural, historical importance.
<b>Responsible person/Institution</b>	Ministry of Rural Development; Development Agencies; Academic and Research Institutes; Local Authorities	Municipality of Archanes-Asterousia and Municipality of Platanias	Tourism and Farmers - processors association	Tourism Directorate; Hotel Owners; Research and Academic Institutes

<b>Objectives</b>	<b>2. Ensuring an adequate income and an adequate standard of living for the rural population</b>	<b>1. Management / Conservation of the vineyards and the natural resources and 2. Ensuring an adequate income and an adequate standard of living for the rural population</b>	<b>1. Management / Conservation of the vineyards and the natural resources and 4. Sharing of know-how and sensitization among stakeholders</b>	<b>4. Sharing of know-how and sensitization among stakeholders in regard to the importance of the cultural landscape of the area and 2. Ensuring an adequate income and an adequate standard of living for the rural population</b>
<b>Expected results</b>	Increase in environmental awareness; Recognized cultural identity of the local community; Diversified production and avoidance of monoculture; Increase in the price of the local certified quality products in the market	Improved public infrastructure and signposts that lead towards vineyards and wineries; Developed and improved infrastructure in the villages; Increased accessibility to the roads and tracks; More secured electricity and water supply; Introduced strong and wide WiFi network	Participatory landscape management; Increase in interest	Analyses of the route system and tourist offer; Analysis of tourism facilities and vineyards; Facilities mapping; More effectively meeting the needs and visitors' requirements for data and information for the region and its resources, and enhancing the wine tourist experience by combining visits in vineyards/wineries with those in places with special environmental, historical and cultural importance.
<b>Indicators</b>	Number of viticulturalists / wineries that produce PDO product; Number of viticulturalists who share their knowledge/expertise	Number roads with developed infrastructure; Number of regulated wild landfills. Infrastructure that facilitates the planting of new vineyards and building up wineries up to the hills.	Number of initiatives taken in collaboration with actors involved in tourism and improving visitors' experience; Number of visiting wineries that organise tours combined with landscape; Agencies that organize and offer various activities (touring, horse riding, mountain biking, etc.); Festivals, wine festivals, festivals of local	Number of studies / reports in regard to the available route route system (e.g., bicycle trails, pedestrian and bridle paths) and itineraries (e.g., sightseeing, cultural, and spiritual) on a supralocal scale, with subsequent analysis of connections and potential criticality; Number of new wine-culture-history - nature routes – Number of

			products; Qualified mountain climbing and hiking guides; Riding centres; Cycling routes; Hiking routes; Tourist information offices.	new more complex experiences.
<b>Key stakeholders/partners involved</b>	Ministry of Ecology, Spatial Planning and Urbanism; Associations/Networks of grapevine growers and wine producers; Municipality; National Tourism Organization; Ministry of Rural Development and Food, Forestry and Water Management; Academic and Research Institutes	Ministry of Agriculture, Municipality; Local community; Tourism Board, Associations/Networks of grapevine growers and wine producers; Wines of Crete	Ministry of Agriculture, Local community; Tourism Board; Tourism Associations; Private Business: Municipality, Associations/Networks of grapevine growers and wine producers; Wines of Crete	Ministry of Agriculture, Municipality; Local community; Tourism Board; Tourism Associations; Private Business; Associations/Networks of grapevine growers and wine producers; Wines of Crete
<b>Connectivity to other activities</b>	1.4 / 2.2 / 2.3	1.4 / 2.1		
<b>Potential resources</b>	Budget of national and local authorities; International grants	Budget of national and local authorities; International grants		
<b>Potential transfer of good practices</b>	B.S.9 Hand picking the grapes B.S.24 Wine routes as promotional tools for viticulture	N/A		

<b>Potential risks and obstacles</b>	Risk of urbanization; Variable costs of inputs; Insufficient supply of contemporary construction materials; Mass tourism risk; Changes in consumers' preferences and income levels; Unpredictable changes in the provision of institutional services (non-financial allocation); Internal and external migration risks (labor shortage); Epidemiological risk	Lack of resources; Unpredictable changes in the provision of institutional services (non-allocation of financial resources by local and national authorities)	Overtourism; Potential pressure by the development of tourism; Difficulty in finding the balance between tourism and agricultural activities;	Unwillingness of the actors to participate in this activity; Lack of resources
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## **8. LONG-TERM STEPS FOR CONSERVATION OF LANDSCAPE AND HABITAT IN VITICULTURE AREAS AND FOR VALORIZATION OF ECOSYSTEM SERVICES**

**Table 3: List of long-term steps (6-10 years), i.e. activities for conservation of landscape and habitat in the viticulture area of the Municipality of Archanes Asterousia and Platanias**

<b>SYNERGY AND SUPPORT OF THE COMPETENT INSTITUTIONS AND RESEARCH &amp; DEVELOPMENT INSTITUTES</b>
<b>SETTING UP A PARTICIPATORY LANDSCAPE OBSERVATORY – TERRITORIAL REGISTRY IN THE AREAS TO SUPPORT KNOWLEDGE, CONSERVATION AND PROMOTION OF THE CULTURAL LANDSCAPE</b>
<b>MEASURES AND PRACTICES TOWARDS REDUCING LAND FRAGMENTATION AS WELL AS RESOLVING DISPUTES IN REGARD TO THE LAND USE</b>

<b>Title</b>	SYNERGY AND SUPPORT OF THE COMPETENT INSTITUTIONS AND RESEARCH & DEVELOPMENT SECTOR	SETTING UP A PARTICIPATORY LANDSCAPE OBSERVATORY – TERRITORIAL REGISTRY IN THE AREAS TO SUPPORT KNOWLEDGE, CONSERVATION AND PROMOTION OF THE CULTURAL LANDSCAPE	MEASURES AND PRACTICES TOWARDS REDUCING LAND FRAGMENTATION AS WELL AS RESOLVING DISPUTES IN REGARD TO THE LAND USE
<b>Time Frame: Short, Medium, Long</b>	Long- Continuous process	Long	Long
<b>Description</b>	There are many Research and Academic Institutes very active in the study areas. Networking and collaboration among all those organizations/institutes will enable the sharing of information, the development of projects that can support experimentation which is very important for the agroecological transition and the sustainable management of natural resources in the areas. Visiting vineyards is also expected to have positive effects in the region.	Accurate Mapping of the area using GIS system; Publications (Newsletters, articles in local news) on Landscape of the area; Interventions related to landscape conservation and management; Nomination of areas with specific interest	Initiation of regional planning to reduce land fragmentation and define land use. Number of schemes / regulations / motives towards the reduction of land fragmentation.
<b>Responsible person/Institution</b>	Academic and Research Institutes; Municipal and Regional Authorities; Development Agencies	Academic and Research Institutes; Municipal and Regional Authorities; Development Agencies Statistical Service; Technical Chamber	Directorate of Agricultural Development; Technical Chamber of Greece
<b>Objectives</b>	<i>All 4 objectives</i>	<i>1. Management / Conservation of the vineyards and the natural resources</i>	<i>1. Management / Conservation of the vineyards and the natural resources and 4. Sharing of know-how and sensitization among stakeholders</i>

<b>Expected results</b>	Stronger correlation between scientists and farmers; Larger spectrum of funding resources and possibilities; Raised awareness and knowledge of local farmers about importance of landscape conservation; Better understanding of farmers about certification procedures	Identification of the landscape values of the area using a participatory process; Creation of a Repository to store and manage accurate data to map the land use in the area; GIS Mapping of the area; Assign Territorial/Regional bodies to provide technical and administrative support to the Landscape Observatory; Disseminate information and data when needed; Creation of a tool useful for all development plans	Planning of the land use to avoid disputes; Reduction of land fragmentation; Avoid monoculture or abandonment or urbanization, all being extensive changes in the agricultural landscape of the area
<b>Indicators</b>	Number of projects related to this subject; Number of trainings, round tables, workshops and similar events organized for the stakeholders in the project area; Net farm income from agricultural activities; Number of young people engaged in the activities of research and development sector; Number of visits to the farms by the representatives of research and development sector; Duration of the execution of an action by the visitor (participation in a guided tour in a winery or vineyard, tasting, lunch, site visit interest etc.); Time reference for the activities offered in particular periods of time or moments (harvest, fair, tour hours, etc.); Photographic file (with reference to the photographer or its owner photo, date taken);	Accurate Mapping of the area using GIS system; Number of publications (Newsletters, articles in local news) on Landscape of the area; Nomination of areas with specific Natural ecosystems in the area under examination; Historical analysis of food crops and their evolution; Mapping current land uses (e.g., types of crops, meadows, vineyards, etc); Valuable crop types mapping (i.e., PDO, PGI, TGI, CDO, and CGDO); Mapping of the main assets of historic and architectural interest in the selected area; Photographic surveys with shooting points on current maps, both for the whole area and for the main assets related to it; Critical comparison of early 20th century photographs and postcards with current ones;	Number of plans for specific areas within the Municipality; Policy measures to reduce fragmentation; Schemes to support viticulturalists and other farmers

	Specifications for the items and information that will be posted on the digital system are given in the Techniques chapter		
<b>Key stakeholders/partners involved</b>	Academic and Research Institutes	Municipality; Regional Authorities; Research Institutes; Technical Chamber; Regional Authorities; Ministry; Farmers; Viticulturists	Regional Authorities; Ministry; Farmers; Viticulturists
<b>Connectivity to other activities</b>			
<b>Potential resources</b>	Budget of national and local authorities; International grants	Budget of national and local authorities; International grants	Budget of national and local authorities; International grants
<b>Potential transfer of good practices</b>	N/A		

<b>Potential risks and obstacles</b>	Unpredictable changes in the provision of institutional services	Lack of collaboration; Unwillingness of the locals/farmers to provide data; Collection of unreliable data; Lack of historic data/information making very difficult to predict and plan	Unwillingness of locals/farmers to collaborate; Large differences in the land; Complex land morphology and large differences in land prices
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## **CONCLUSIONS**

Deliverable T2.3.1: The Local Action Plan for the conservation of landscape and habitat in viticulture areas and for the valorisation of ecosystem services in the study areas of the Municipality of Archanes-Asterousia and the Municipality of Platanias, Chania describes Local Action plans to be developed in regard to the viticulture in order to be able to properly manage the natural resources, the landscape and preserve the biodiversity of the area, without jeopardizing the economic sustainability.

The LAPs have been compiled based on the previous activities conducted within the ECOVINEGOALS project and therefore represents the summary of the short-, mid- and long-term steps whose implementation will open a completely new perspective for the development of viticulture and viniculture in the study areas of Crete, oriented towards agro-ecological, integrated, organic and bio-dynamic management systems.