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**Agri-environmental perspective
and Leader/CLLD approach
as opportunities for sustainable rural
development in Croatia.**

Matej Vranic

**Série « Master of Science » n° 143
2015**

**Institut Agronomique Méditerranéen de
Montpellier**



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Abstract: LEADER is an innovative component in the European Union's rural development policy. Bearing in the mind that European areas are diverse, led to the fact that development strategies are more efficient if they are decided at the local level, by the inhabitants of rural areas. Republic of Croatia, as a new Member State, started to use EU tools, and cooperation with much more experienced members such as France will lead to the success. Researched areas in France and Croatia have long agricultural tradition and because of that, specific cultural landscape. Mediterranean agro-pastoral UNESCO site and Adriatic Croatian cultural landscapes need tools to maintain pastoral and other agricultural activities. Agri-environmental operations which include reducing chemical emissions, protection biodiversity, restoring landscapes and preventing rural depopulation are introduced in European Agricultural Fund for Rural Development and recognized as need because of increased concern over the environmental impact of agriculture in Europe. Awakening of consciousness about these possibilities and opportunities is necessarily for further sustainable rural development in Mediterranean region and its saltus.

Keywords: Mediterranean region, LEADER approach, Cultural landscape, Agri-environment, Sustainable rural development.

Résumé : LEADER est une composante innovante dans la politique de développement rural de l'Union européenne. Rappelant que la diversité des zones européennes a conduit au fait que les stratégies de développement peuvent être plus efficaces si elles sont décidées au niveau local, par les habitants des zones rurales. La République de Croatie, comme un nouvel État membre de l'UE, a commencé à utiliser les mécanismes de développement communautaires et la coopération avec les membres de l'Union Européen les plus expérimentés, tels que la France, conduira à sa réussite. Les zones observées dans cette étude, en France et en Croatie, ont une longue vocation agricole et par conséquent un paysage culturel particulier. Le site agro-pastoral Méditerranéen de l'UNESCO et les paysages culturels Adriatiques Croates, ont besoin d'outils pour maintenir les activités pastorales et poursuivre les autres activités agricoles. Les mesures agro-environnementales, qui incluent la réduction des émissions chimiques, la protection de la biodiversité, la restauration des paysages et la prévention de l'exode rurale, sont prises en considération dans le Fonds européen de développement rural agricole et reconnues comme une nécessité en raison des problèmes accusés de l'impact environnemental de l'agriculture en Europe. La prise de conscience au sujet de l'importance des mesures agro environnementales ouvre des opportunités pour la poursuite du développement rural durable dans la région méditerranéenne son saltus.

Mots-clés : région méditerranéenne, approche LEADER, paysage culturel, Agri-environnement, le développement rural durable.

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List of acronyms

AEM	Agri-environmental measure
ARKOD	Register system of land parcels in Croatia
CAP	Common Agricultural Policy
CARDS	Community Assistance for Reconstruction, Development and Stabilisation
CLC	Corine Land Cover
CLLD	Community-led Local Development
EAFRD	European Agricultural Fund for Rural Development
EC	European Commission
EEA	European Environment Agency
EIP	European Innovation Partnership
EU	European Union
HNV	High Nature Value
IBA	Important Bird Areas
ISPA	Instrument for Structural Policies for Pre-accession
IPA	Instrument for Pre-accession Assistance
IPARD	Instrument for Pre-accession Assistance – Rural Development
LAG	Local Action Group
LEADER	<i>Liaison Entre Actions de Développement de l'Économie Rurale</i> , LEADER programme
LDS	Local Development Strategy
MAP	medicinal and aromatic plant
OPG	<i>Obiteljsko poljoprivredno gospodarstvo</i> , family farm
Phare	<i>Pologne et Hongrie: assistance à la restructuration économique</i>
RDP	Rural Development Programme
SAPARD	Special Accession Programme for Agriculture and Rural Development
SCI	Sites of Community Importance
SNV	semi-natural vegetation
SPA	Special Protection Areas
UNESCO	United Nations Educational, Scientific and Cultural Organization

Introduction

Mediterranean area is characterised by a very diverse and highly sensitive landscape, which consists of a very long coastline, mountainous regions, numerous rivers and lakes, arable land, forests and many islands. For this reason, the area is faced with difficulties in communication and access between countries, regions and surrounding areas. Furthermore, the geographical fragmentation of the Mediterranean does not facilitate the establishment of transnational coordinated development strategy between states, regions and major metropolitan areas. It is necessary to understand the history and cultural heritage of this area. History, culture and climate make this area extremely attractive, which stimulates the tourism activities, but that makes pressure on the cultural and natural heritage. Concerning the environment, the Mediterranean area is rich in biodiversity. In some regions of the Mediterranean, over-exploitation, combined with poor exploitation of natural resources has led to severe degradation of the natural environment. For these reasons, the protection of the territorial heritage and sustainable development is a priority for the future.

Several major problems prevent sustainable rural development. Unevenly urban sprawl in coastal areas affects aquatic life and destroying farmland. Therefore, it is necessary to develop a policy that maintains biodiversity in the Mediterranean countries. Accidental and illegal construction is also a problem. The concentration of population and economic activities in coastal areas, and tourist urbanization are further burdened the population growth in the southern and eastern regions of the Mediterranean basin¹. On the other hand, islands have negative demographic trends.

This paper is result of six months internship which title was “*Sustainable Management of Agri-environmental Interactions in Mediterranean Territories - Cross Diagnosis and Strategic Analyse (France - Croatia)*”. There are two main scopes of research and action within internship. First, agri-environmental actions and possibilities within Common Agricultural Policy (CAP) and related European rural development tools such as LEADER programme. CAP is a set of laws and practices, which European Union has adopted to provide a common, unified policy on agriculture. CAP is the most comprehensive economic policy of the EU with aim to provide long-term maintenance of agriculture as the core of a living countryside. CAP also provides support for the LEADER rural development methodology, under which Local Action Groups (LAG) are designed and carry out local development strategies for their areas. Second part of internship emphasises the importance of interface-areas in current management of Mediterranean territories. *Saltus* are those territories, which are hosting agri-environmental interactions, *ager* is uncultivated land and *silva* is forest area. Those territories of *saltus* are traditionally qualified by their “low productivity”. Also, there is the gradual abandon of agricultural and pastoral activities in the last decades. Nowadays, there are possibilities for new strategies of recovery such as local products valorisation of pastoral/grazing activities, medicinal and aromatic plants (MAPs) picking and transformation, etc. The challenge is to articulate these practices with the conservation of agro-biodiversity heritage which is endangered. The aim is to combine *saltus* ecosystem, which was largely shaped by human activities, with a sustainable rural development (production and touristic activities, cultural landscape valorisation, etc.).

¹ <http://cor.europa.eu/en/activities/arlem/Documents/e49b2027-67de-4fcd-8d06-fceb5f011ae2.pdf>

Objectives of internship were cross-diagnosis to identify and characterize actions in researched area and strategic analyse of current management practices and strategies. With cross-diagnosis, the goal is to describe dynamic of changes and development of agriculture, environment and landscape. Also there is a need for identification of impacting and limiting factors and ecological, sociological and historical approach. The aim of strategic analyse is to describe market, regulatory standards and norms, and how they shape Mediterranean rural development policies. Based on surveys and interviews of various local stakeholders, the aim is to give a strategic picture of the different tools which are dealing with rural development issues and environmental protection (natural heritage and valuation of agro-biodiversity). The strategic analyse will characterize what type of public/private are currently prevailing for the management of these interface-areas and identify modalities of an effective collective action and its strategic actors. Results should define a framework for analysis and joint actions which are focusing on promoting local resources and to define common interests of both Mediterranean areas. Results made with this internship should participate to cooperation on rural Mediterranean territories recovery. Also, these actions should lead to creating of 2014-2020 Local Development Strategies.

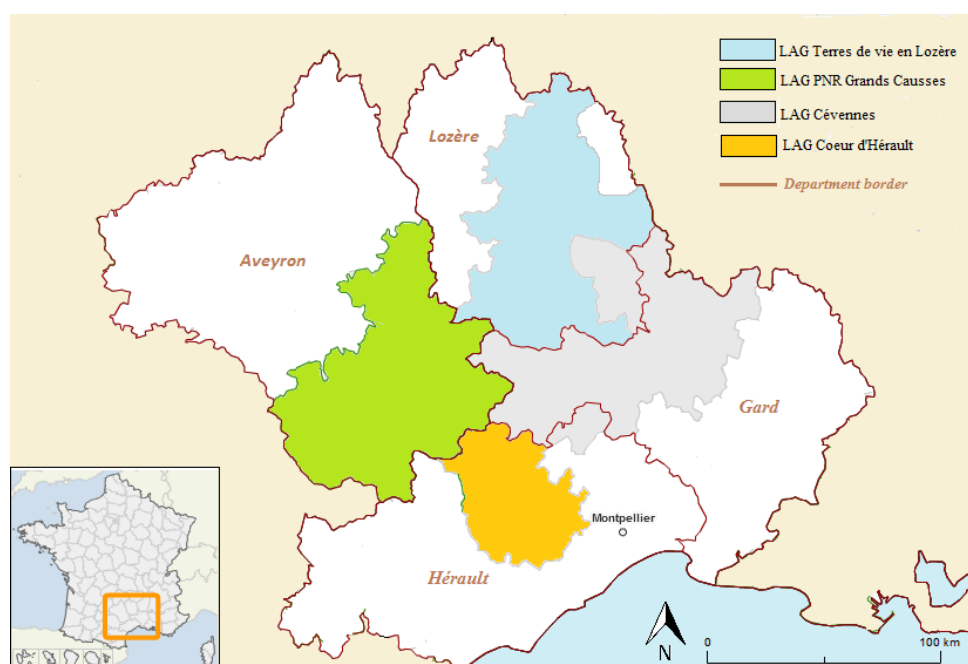
Internships included the preparation phase (literature, seminars, training on key concepts and practical issues) in France, then the phase of field works in France (area of four LAGs) and Croatia (Split-Dalmatia County and LAG *Škoji*) as well as a data analysis and writing session and presentation of field results. For a listing and basic conditions explanation of the observed territories there will be used descriptive methods. The demographic analysis will be applied with analysis and synthesis methods with the use of the scientific literature and the results of previous research. The current status of the observed area will be carried by the field research. All collected data are analyzed and presented in statistical tables and graphs, and some processed data are cartographic represented.

Chapter I: Some elements of French experience in agri-environment through LEADER in South of France

I. Introduction to researched area – four French LAGs

Area of four French LAGs² by its surface is large and complex area because it includes two regions, *Midi-Pyrénées* and *Languedoc-Roussillon* and four departments. LAG *PNR Grands Causses* is the only LAG which is placed in *Midi-Pyrénées*, to be precise in eastern part of region in department of *Aveyron*. As its name says in French, LAG *PNR Grands Causses* is established on Regional Natural Park *Grands Causses* territory. North-east of that LAG is LAG *Terres de vie*, located in the north of the *Languedoc-Roussillon* region and it covers more than half of territory of the *Lozère* department. Most complicated territorial overlapping has LAG *Cévennes*, placed in three departments, mainly in the *Gard* with small parts in the departments of *Hérault* and *Lozère*. Finally, LAG *Convivencia* is placed in the hinterland of *Hérault* department, south-east of the LAG *PNR* and south-west from the LAG *Cévennes* (Map 1). This three Languedoc-Roussillon's LAGs are established on territory of the French *pays*, an area whose inhabitants share common interest.

Map 1: Four French LAGs and following departments

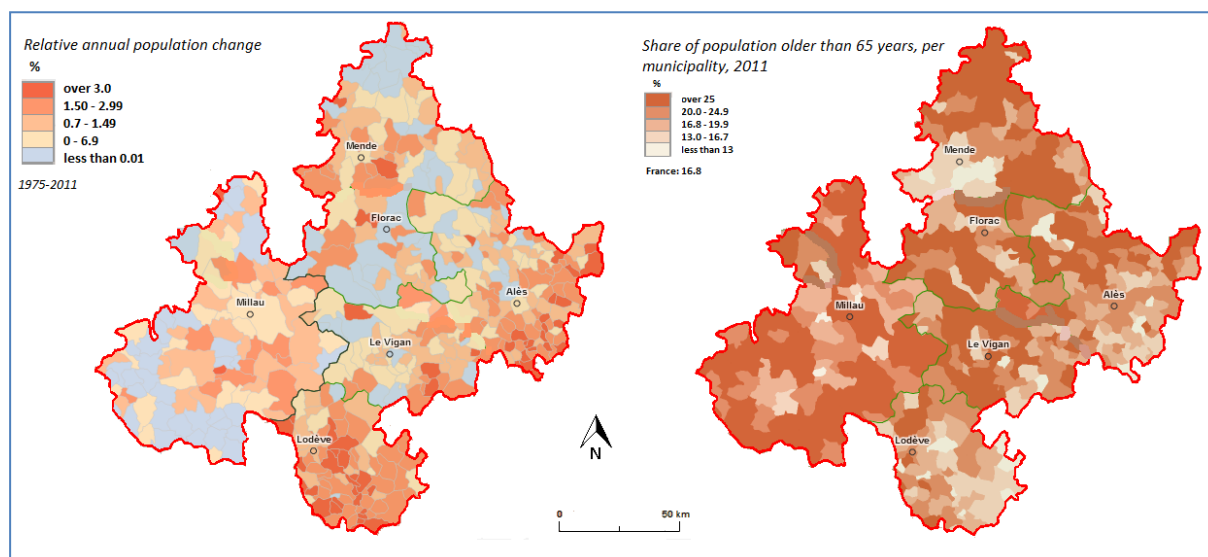


This mostly medium-high mountain area has very low population density, which makes difficulties in connection of inhabitants and services. Among other things, it is reason for cooperation between other LAGs in region, France or in the EU. Unfavourable demographic trends are in common for all four

² “A Local Action Group (LAG) is a partnership of public, economic and civil sector at local level, which is established for the purpose of drawing-up and implementing the LDS of that area” (RDP of Croatia 2014-2020).

LAGs. Only LAG *Convivencia* has better trends because of its location (close to regional centre of Montpellier and other largest cities) and more favourable climate. Largest centres in LAGs are Alès and Millau as only two municipalities with more than 20.000 inhabitants. Other important centres are Mende (more than 10.000), Lodève, Le Vigan and Florac. Florac has less than 2.000 inhabitants but its importance lays down in the fact that it is placed in the centre of the National Park *Cévennes* and it is the only larger settlement in surrounding area. Population trends for period 1975-2011 shows predominantly increase number of inhabitants but it is not evenly distributed. Increase can be noted near largest centres, in the lower areas and on south and east of territory (closer to the Montpellier and Nîmes). The fact that is concerning is population decrease in mountain areas. Other thing that is concerning and can limited development is share of the population older than 65 years. Almost in whole area, that share is larger than national average. In this case it is the same thing; southern parts have better condition with that (Map 2). One of the main reasons why is this area object of research is because of its long agricultural tradition and its value in future development. Mediterranean agro-pastoral cultural landscape as UNESCO site needs tools to maintain pastoral and not only pastoral activities. Common Agricultural Policy, Rural Development as second pillar and finally LEADER with its bottom-up approach through LAGs can offer some solutions and actually start actions.

Map 2: Relative annual population change in four LAGs (1975-2011) and share of population older than 65



Source: L'Observatoire des Territoires Espace cartographique

II. The Causses and the Cévennes, Mediterranean agro-pastoral Cultural Landscape

In 2011, the Causses and the Cévennes on the 302.319 ha became part of the UNESCO's World Heritage List based on two criteria. Criterion (iii): „*The Causses and the Cévennes, manifest an outstanding example of one type of Mediterranean agro-pastoralism. This cultural tradition, based on distinctive social structures and local breeds of sheep, is reflected in the structure of the landscape, especially the patterns of farms, settlements, fields, water management, drailles and open grazed common land and what it reveals of the way this has evolved, in particular since the 12th century. The agro-pastoral tradition is still living and has been revitalised in recent decades*”. Criterion (v): “*The Causses and the Cévennes can be seen as an exemplar of Mediterranean agro-pastoralism and specifically to represent a response common to the south-west of Europe. The landscape areas manifest exceptional responses to the way the system has developed over time and particularly over the past millennia*” (UNESCO, 2011a).

There are several types of agro-pastoral systems in this UNESCO site. Agro-silvo pastoral systems are identified by purpose of producing (meat, cheese, milk) and their location (UNESCO, 2011b). Agro-pastoralism is defined as “*an agrarian system that combines extensive animal farming and crops in two clearly separate areas: on the one hand the so-called natural spaced reserved for grazing and on the other cultivated, organized spaces devoted to crops and strongly marked by human activities*” (Luginbühl, 2010). In the *Causses*, *Cévennes* and *Lozère* there is long tradition of transhumance as one form of seasonally mobile pastoralism. Because of lack of food in the plains during summer, direction of transhumance was from the lowland of *Languedoc* to the uplands of the *Causses* and the upper *Cévennes*. Vegetation of lowland is made mainly of *garrigue*, a scrubland mainly of holm oak and juniper. The *Causses* are limestone high plateau from 400-1.200 m above sea level. The southern areas have Mediterranean climate while areas that are more northern becomes more continental. Oak trees were originally forest cover but due the pastoralism it has been deforested. The *Cévennes* and *Lozère* are area up to the 1.600 m and the northern border is the *Massif Central* (Biber, 2010). Agricultural land in a scrubland *garrigue* is mostly privately owned, but pastoral land is very poor and herd need more space because of that. During 1950s, when agriculture became less viable, many farmers sold their properties. Sold houses became houses for holidays, but still there was possibility for sheep holders to have agreements with landowners to use agricultural land. In decades after, landowners were not that open anymore for verbal agreement so for sheep holders less and less land was available. Abandoned land became covered with forest or built up with houses (Biber, 2010). Today, only a few flocks have they seasonally way from lowland to the upland (UNESCO, 2011a).

1. High Nature Value farmland in the Grand Causses and the Cévennes

One of the characteristics of the *Causses* and the *Cévennes* is semi-natural vegetation, kind of vegetation which is not intensively managed and it consists by species native to the area which regenerate themselves without direct human intervention. FAO defined semi-natural vegetation (SNV) as vegetation not planted by humans but under human influence. These may result from grazing and from practices such as selective logging in a natural forest³. Semi-natural vegetation is the back-bone of the large part of European biodiversity. Forms of SNV from an agrarian perspective are *saltus* (cultivated land used for grazing), *ager* (cropped land), *hortus* (gardened land) and *silva* (woodland). “*A minimum amount of SNV/saltus, which provides a habitat for indigenous species, is not just a key characteristic of High Nature Value landscapes, but an absolute necessity for meaningful biodiversity conservation in agricultural landscapes*”. It is important to have a dynamic understanding of biodiversity conservation because many HNV agricultural landscapes changed over past centuries. Main features of pastoral activities in Mediterranean area, which is characterized by highly variable with water availability limiting factor, in the 1960s were extensive livestock system with sheep and goats on the small farms but large area to graze off the farm. In that time *saltus* was characterized by highly diversity of extensive types with limited share of grass. Overall decline of pastoral activities happened in decades after due to socio-economic and less technical changes. Extensive *saltus* types decrease because of abandon. In years after 1990s there is trend of brought-in animal breeds but still overall decline continued (Poux, 2013).

Agriculture gives an important role in the maintenance of biodiversity. Andersen *et al.* (2003) defined High Nature Value (HNV) farmland as “*those areas in Europe where agriculture is a major (usually the dominant) land use and where agriculture sustains or is associated with either a high species and habitat diversity, or the presence of species of European conservation concern, or both*”. The Concept of HNV farmland has been evolving over the last more than twenty years in Europe and in the EU this has been closely linked to the objectives of integrating environmental concerns in the Common Agricultural Policy. In programming period 2007-2013, HNV farmland areas were one of the indicators to assess the Rural Development Community Strategy and one of the three priorities of axis

³ <http://www.fao.org/docrep/003/x0596e/x0596e01f.htm>

2 (biodiversity and preservation of HNV farming and forestry systems) (Pointereau *et al.*, 2007). Nature values, environmental qualities and even cultural heritage are linked to or they dependent on farming. HNV farmland can be distinguished in; (1) *farmland with a high proportion of semi-natural vegetation*; (2) *farmland with a mosaic of low intensity agriculture and natural and structural elements (such as filed margins, hedgerows, dry stone walls, patches of woodland or shrub, and small rivers)* and (3) *farmland supporting rare species or a high proportion of European or world populations* (Andersen *et al.*, 2003). Some of typical HNV farmland areas are extensively grazed uplands, alpine meadows and pasture, steppes in eastern and southern Europe and *dehesas* and *montados* in Spain and Portugal (Paracchini *et al.*, 2008). HNV farmland areas are endangered because of pressure, which comes of a vulnerable economy (e.g. agriculture is usually extensive and vulnerable to change) and depopulation. Biodiversity cannot submit intensification and abandonment of agriculture (Pointereau *et al.*, 2007).

The main pillars of the nature and biodiversity policy of the EU are the Habitats Directive (Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora) and the Birds Directive (79/409/EEC on the conservation of wild birds) and their annexes list habitats and species of European importance. Those directives represent the basis for the development of a Natura 2000, EU network of protected sites. Natura 2000 is closely linked to the HNV farmland concept and its information of species and habitats are used with the Corine Land Cover (CLC 2006) as a background. Also, additional data sources were used: Important Bird Areas (IBAs), Prime Butterfly Areas (PBAs) and National biodiversity datasets (Halada *et al.*, 2011).

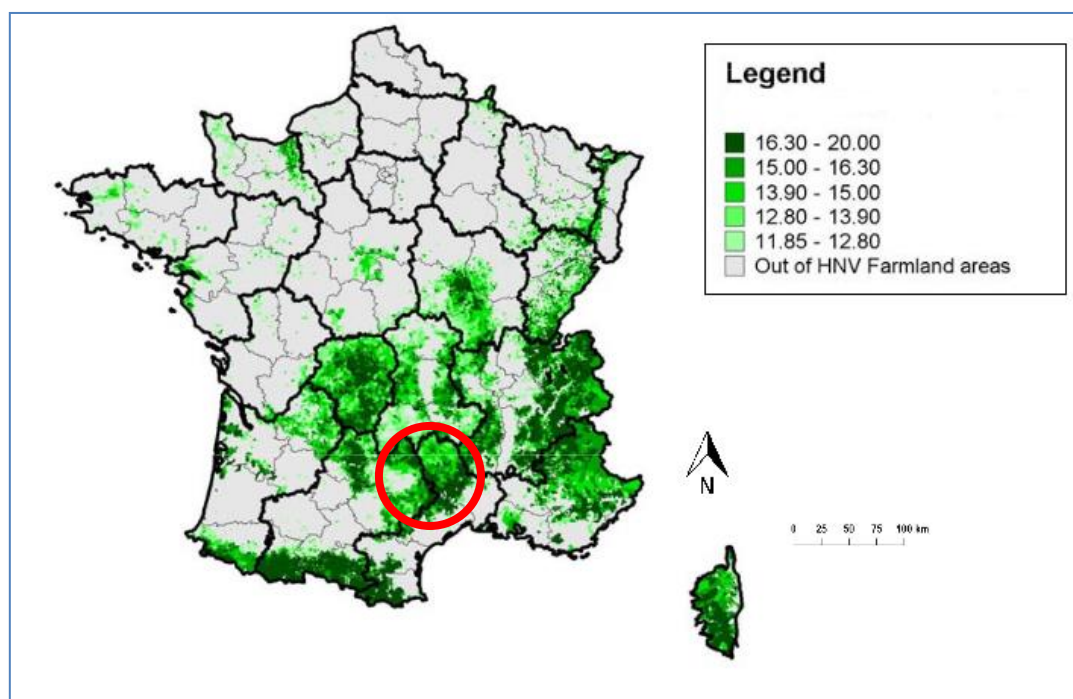
The share of HNV farmland areas in many Member States of EU-27 (without Croatia) is between 10 and 30% and in France 22.8%⁴. Also, HNV farmland 2006 has been shown for shares per NUTS 2 regions. Total HNV farmland area derived from the EU HNV map in Languedoc-Roussillon region was 777.544 ha and in Midi-Pyrénées 1.199.642 ha with the share of 52.60% and 39.74% of HNV farmland (EEA, 2012). To put the data on a map, a set of three indicators was used: (1) *diversity of crops*; (2) *extensive practices* and (3) *landscape elements*, with maximum score of 20 points (maximum 10 points for first indicator and for second and third indicator 5 points) (Pointereau *et al.*, 2007). Diversity of crops and share of permanent grassland are maximum valued, among other parts, in northern part of Languedoc-Roussillon and western parts of Midi- Pyrénées region, parts of regions, which are within mentioned 4 LAGs (Map 3). One of the indicators was also location of traditional orchards by municipalities where for example chestnut trees in Languedoc-Roussillon are presented. In France, according to results from 2007, there are 21 main zones of HNV areas, plus one zone that includes all isolated municipalities. Two of 21 zones are *Grands Causses* (*Grands Causses* and *Monts de Lacaune*) and *Cévennes* (*Ardèche*, *Cévennes* and *Haut Vivarais*) (Pointereau *et al.*, 2007). According to land use in these two zones, the largest shares of both zones are rough grasslands, temporary grasslands and productive permanent grasslands (Table 1), which means that both HNV areas are mainly grazing systems (sheep and goats). Other characteristic is low percentage of fallow land.

⁴ http://ec.europa.eu/agriculture/statistics/rural-development/2013/full-text_en.pdf

Table 1: Land use of the Grands Causses and the Cévennes

Zones	Total utilized agricultural area (ha)	Temporary grasslands and annual fodders	Productive permanent grasslands	Rough grasslands	Common land	Other arable land, vineyards, orchards	Fallow land
Grands Causses	266.196	33.4%	15.4%	36.6%	1.1%	14.2%	0.4%
Cévennes	135.171	3.2%	13.0%	75.6%	12.1%	7.4%	0.4%

Source: Pointereau et al., 2007

Map 3: HNV Farmland areas in France

Source: Pointereau et al., 2007

Pointereau *et al.* (2007) made comparison of HNV areas for 1970 and 2000. All agri-environmental indicators at national level were negative such as total utilized agricultural area, permanent pastures, hedges, traditional orchards, pesticides and N mineral fertilizer.

2. Activities and strategy of the Causses and the Cévennes

Key stakeholders like National Park Cévennes, municipalities, *communauté de communes*, departments and regions supports Management plan of UNESCO site. Except them, large involvement and support gave the local farming communities in sustaining the agro-pastoral landscape. “A Strategy for 2007-2013 addresses key themes related to improving and sharing knowledge, promoting an understanding of the living landscape and encouraging the participation of all the key players”. Lots of education and workshops were made for farmers. The Strategy included (1) drawing up an inventory of attributes of the landscape; (2) developing knowledge of the landscape; (3) acquiring a common language for the landscape; (4) developing a decision-making tool for the restoration and the management of the landscapes; and (5) identifying emblematic sites of the cultural landscape. Implementation of the Strategy is necessarily and there is a need to underpin the whole rationale for identification, protection and management of the agro-pastoral landscape (UNESCO, 2011a).

III. Agri-environmental measures in LEADER Programme 2007-2013

The Rural Development policy (as defined in *Council Regulation (EC) No 1698/2005*) has provided a set of tools (measures) from which all Member States could choose and for, which they received EU financial support to implement integrated Rural Development Programmes. Policy had four axis (Fig.) with corresponding measures:

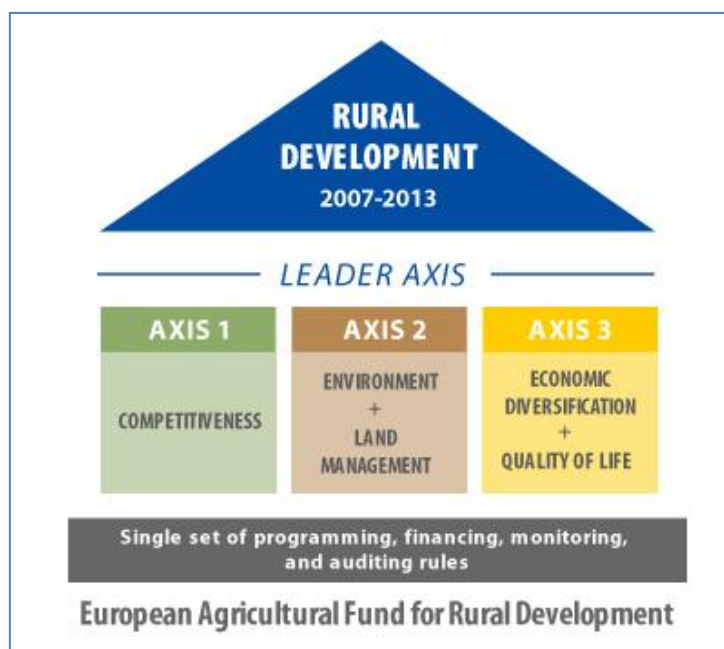
Axis 1: “to improve the competitiveness of the agricultural and forestry sector including a range of measures that target human and physical capital in the agriculture, food and forestry sectors (promoting knowledge transfer and innovation) and quality production”.

Axis 2: “to improve the environment and the countryside, providing measures to protect and enhance natural resources, as well as preserving high value farming and forestry systems and cultural landscapes in Europe’s rural areas”.

Axis 3: “to enhance the quality of life in rural areas and diversification of the rural economy, offering support develops local infrastructure and human capital in rural areas, to improve the conditions for growth and job creation in all sectors and the diversification of economic activities”.

Axis 4: “based on the LEADER experience, introduces possibilities for innovative governance through locally based, bottom-up approaches to rural development”⁵.

Figure 1: Rural Development structure, 2007-2013⁶



⁵http://enrd.ec.europa.eu/enrd-static/policy-in-action/rural-development-policy-overview/axes-and-measures/en/axes-and-measures_en.html

⁶http://enrd.ec.europa.eu/enrd-static/policy-in-action/rural-development-policy-overview/axes-and-measures/en/axes-and-measures_en.html

1. LEADER 2007-2013 in two French regions

The acronym LEADER (fr. *Liaison entre actions de développement de l'économie rurale*) means links between rural economy and development actions and it was idea to connect people and bodies who could contribute to the rural development process in their area by forming partnerships at sub-regional level between public, private and civic sectors. The Local Action Group (LAG) is the main tool for the implementation of the LEADER approach to area development an involving all actors in decision-making. Seven key features summarise the LEADER approach: (1) area-based local development strategies, (2) bottom-up elaboration and implementation of strategies⁷, (3) networking, (4) cooperation, (5) local public-private partnerships (LAGs), (6) integrated and multidisciplinary actions and (7) innovations⁸. The LAG is responsible for developing and implementing the strategy in its territory in particular through comprising at least 50% of private members.

From the start, LEADER concept with its many features had the attention of rural sociologists. It was noted as a postmodern form of intervention and it had an apparent anarchic element pervading the design and implementation of development activity in localities. As one of the main problems of LEADER, authors and LAG managers point out politicization because LAGs are areas in which component actors are understood to be working. This is happening through the nature of the project process and through the creation of participative decision-taking structures in localities (Ray, 2000). LEADER is innovative in three important ways. It represents an attempt to see farming more as a key horizontal component of local territorial construction, definition and identity and not as an element in a series of largely vertical production chains. Second, LEADER makes agriculture the basis for local territorial projects and third, it brings agri-environmental schemes which have brought local political and civic actors into the agricultural policy for the first time (Buller, 2000).

The European Agricultural Fund supports innovative rural development projects of Rural Development (EAFRD) in the framework of the Rural Development Programme (RDP). After three generations of EU initiative programs in France (LEADER I, LEADER II and LEADER +), LEADER Axis 4 for period 2013-2014 was in the framework of *Rural Development Programme of mainland France*. The RDP has determined the measures of European Rural Development Programme open to 21 regions of mainland France except Corsica. Within the RDP, Axis 4 was allowed to implement the features of axes 1, 2 and 3, combining and adapting the profile of local areas in part of a local development strategy. LEADER axis 4 consisted five measures; 411, 412 and 413 measures stands for “*Implementing local development strategies*”, to be precise competitiveness, environment/land management and quality of life/diversification, measure 421 “*Implementing cooperation projects*” and 431 “*Running the local action group*”, skills acquisition and animation.

It should be emphasized that project within LEADER are mostly small projects that are proposed to develop the local economy through small and micro enterprise, tourism, agriculture, forestry and other sectors. There are large differences between LEADER approaches in two regions. Both of regions adopted seven characteristics of LEADER but Midi-Pyrénées region had strong environmental approach in the selection of measures. Measure 323 “*Conservation and enhancing rural patrimony*” and measure 214 “*Agri-environmental payments*” and their corresponding sub-measures have high share within EAFRD of that region (Annex 1). Also, Midi- Pyrénées provided higher amount of support for LEADER but it is because of larger number of LAGs in that region (Table 2). Languedoc-Roussillon allocated 16% of total amount for measure 412 but not even one projects is made in that period (Table 3).

⁷ The bottom-up approach means that local actors participate in decision-making about the strategy and in the selection of the priorities to be pursued in their local area.

http://ec.europa.eu/agriculture/publi/fact/leader/2006_en.pdf

⁸ http://ec.europa.eu/agriculture/publi/fact/leader/2006_en.pdf

Table 2: Characteristics of LEADER in two regions and available measures (2007-2013)

	Midi-Pyrénées		Languedoc-Roussillon	
Characteristics of LEADER	7 characteristics of leader / strong environmental approach		7 characteristics of leader	
Available measures	all measures from RDP of France - mainland, Regional Rural Development Documents, EU text / not from national-basis / at margin possibility out of EAFRD measures			
Regional orientation	3 axes were opened / Local Development Strategy oriented towards Natura 2000 issues, Pyrenean pastures (214-I, 323-A, 323-B, 323-C) issues		3 axes are opened / LDS integrated to legal structure-basis / LDS have to foster economic development and attractiveness	
Specific measures	214-I, 227, 311, 312, 313, 321, 323-A, 323-B, 323-C, 331		323-E - conservation and valorisation of cultural patrimony	
Total funding (in € millions)	30		15.5	
411 (%=€ million)	1.7%	0.5	6.5%	1
412 (%=€ million)	10%	3	16.1%	2.5
413 (%=€ million)	71.7%	21.5	54.2%	8.4

Source: annexes II and III

Table 3: EAFRD final contribution to LEADER in two regions⁹

Measures	Midi-Pyrénées (€)		Languedoc-Roussillon (€)	
411	833.203	2.8%	129.319	0.7%
412	80.518	0.3%	0	0
413	23.605.231	78.7%	13.747.362	74.8%
LEADER	30.000.000		18.370.000	

A. LAG PNR Grands Causses

Regional Natural Park *Grands Causses* has many local initiatives for sustainable development in the sectors of tourism, culture, natural and cultural heritage, renewable energy and rural economy. Through LEADER approach they tried to have innovative projects and cooperation in response to social and environmental issues related to the specific characteristics of the territory. Their strategy was build around the targeted priority: “*PNR Grands Causses face the challenges of climate change, preservation and enhancement of resources*”. Within that priority, there were three axes for development of the area. First axis was to preserve and save the resources of the territory and for that, it was necessarily to change agricultural practices. Also, within this axis there were dual objectives of maintaining agriculture and environmental preservation. Second axis was to develop the consumption

⁹ <http://www.languedoc-roussillon.eu/fonds/feader.php>; <http://www.europe-en-midipyrenees.eu/docs-reference-fonds-europeens/#feader>

patterns and third to develop local economic sectors in environmental protection, supporting local initiatives and quality¹⁰.

Projects that were made in LAG *PNR Grands Causses* are mostly public initiatives, but also there is large number of private initiatives. From all four researched LAGs, this LAG has the highest awareness about importance of pastoral system in territory. Three projects are focused on the informing and gathering knowledge about silvo-pastoral and agro-pastoral activities. Also, several projects are focused on the supply chains and other innovative projects. Only projects directly involved with UNESCO site was promotion of the gates, in this case promotion of Millau gateway to the site (Table 4).

Table 4: Chosen projects funded through LAG *PNR Grands Causses* in the period of 2009-2014

Measure within RDP	Projects	Project condition	Recipient	EAFRD amount (€)
421	Promotion and communication of UNESCO site gates, Millau	Creation	Public	4.068,30
313	Creation of the " Viaduct green trace " between Millau and Saint-Georges-de-Luzençon	Creation	Public	13.297,27
341 B	Prefiguration of an organic market garden incubator	Study	Private	14.599,53
323 D	Valorisation of chestnut valley in Rance	Creation	Private	1.280,80
341 A	Communication and awareness of silvopastoralism	Creation	Public	11.929,26
323 D	Knowledge of forest ecosystems managed by silvopastoralism	Study	Public	15.062,92
323 E	Awareness and information about agropastoralism	Study	Public	23.127,00
311	Creating a house with high value added and environmental heritage "la Jasse de l'Oulette"	Creation	Private	15.238,66

Source: LAG PNR Grands Causses, 2014

B. LAG *Terres de vie*

The LAG *Terres de vie* in the department of Lozère contain two *pays*, *Pays des Sources en Lozère* and *Pays Gorges Causses Cévennes*. The challenge of the LAG is to preserve natural environment while promoting local resources, to develop local economy and to maintain and increase its population. Because of the National Park *Cévennes*, this area enjoying positive image and territorial attractiveness. They supported actions were to create local services to make life easier, value natural heritage, promote and support innovative solutions, promotion of local tourism, support activities for the implementation of development projects in the forestry and to preserve the condition of natural resources for sustainable agriculture and forestry. Also, cooperation was included to develop Local Development Strategy, promoting local resources and to build new partnerships and exchange experience¹¹.

¹⁰ http://www.reseau-rural-languedoc-roussillon.eu/sites/default/files/file/leader_mp_pnr_grands_causse_fr.pdf

¹¹ http://www.reseau-rural-languedoc-roussillon.eu/sites/default/files/file/leader_lr_gal_terres_de_vie_en_lozere_fr.pdf

Between projects made within LEADER, projects connected with economy and services prevail in the LAG *Terres de vie*. Through some measures, they put an emphasis on tourist valorisation of National Park. One project considers Natura 2000 site and informing public about it. Also, there are projects about education of public about biodiversity and connecting stakeholders who are dealing with environment (Table 5).

Table 5: Chosen projects funded through LAG *Terres de vie* in the period of 2009-2014

Measure within RDP	Projects	Project condition	Recipient	EAFRD amount (€)
323 D	Information and public awareness on biodiversity (Conservatoire des Espaces Naturels de Lozère)	Creation	Public	9.956,85
341 B	Development and networking of educational environmental stakeholders	Study	Public	8.381,11
323 D	Establishment of five information panels and brochures on the Natura 2000 site FR 9102008	Creation	Public	4.530,47

Source: LAG Terres de vie, 2014

C. LAG Pays Cœur d'Hérault Convivencia

LAG *Convivencia* consist one *pays*, *Pays Cœur d'Hérault* and it is an area which bordered to the south with coastal cities Sète, Agde and Béziers and with Montpellier Agglomeration on the east. On the west there is Regional Natural Park *Haut-Languedoc*, on the north *Causses* and on the north-east, *Cévennes*. That strategic position with high potential gives basis for the future development. In period 2007-2013, their supported actions were modernisation of farms, diversification into non-agricultural activities, support for the development of micro-enterprises, enhancement of the landscape and natural heritage, encouragement of tourism activities, conservation of the rural natural heritage, development of short supply chains and cooperation projects¹². In the period of 2009-2014, more than 60 projects were made through LEADER and LAG *Convivencia*. Most of the projects were focused on the valorisation and diversification of wine industry/production. Also, several projects included ecotourism, wine tourism, short supply chains and valorisation of the lake *Salagou*. Table 6 includes projects connected with patrimony preservation and agricultural activities.

Table 6: Chosen projects funded through LAG *Convivencia* in the period of 2009-2014

Measure within RDP	Projects	Project condition	Recipient	EAFRD amount (€)
323 E	Renovation of heritage in Arboras	Creation	Public	44.550,00
323 D	Agroecological wine territories in Jonquières, Montpeyroux and Saint Saturnin de Lucian (3 projects)	Study	Private	21.515,54 per project
323 E	Renovation of patrimony, Saint Guilhem le Désert	Creation	Private	7.663,39
323 E	Renovation of patrimony, Le Caylar	Creation	Public	49.999,99
421	Promotion of UNESCO site gate, Lodève	Creation	Public	5.085,39

Source: LAG Convivencia, 2014

¹² http://www.reseau-rural-languedoc-roussillon.eu/sites/default/files/file/leader_lr_gal_convivencia_fr.pdf

D. LAG Cévennes

LAG Cévennes includes two *pays*, *Cévennes* and *Aigoual- Cévennes Vidourle* in the department of *Gard*. *Alès Agglomération* is excluded of this LAG because according to RDP it does not consider rural area anymore. Supported actions within Local Development Strategy, beside other actions, were development of strategies for the local wood industry and for enhancing socio-economic development, structuring facilities for local industries and enterprises, support for micro-enterprises valuing local resources, development of a quality tourism, diversification into non-agricultural activities and valorisation of pastoralism as natural heritage in *Cévennes*. In addition, they had interest in cooperation for thematic exchanges, exchange of information and experience and sharing of experiences and development of joint actions¹³.

In the period of 2009-2014, more than 90 projects were made through LEADER and LAG *Cévennes*. Most of the projects were focused on the economy and services development. In Table 7, there are chosen projects that are directly connected with agri-environmental activities and patrimony preservation. Highest amount of support went to the school of dry stone constructing.

Table 7: Chosen projects funded through LAG *Cévennes* in the period of 2009-2014

Measure within RDP	Description of project	Project condition	Recipient	EAFRD amount (€)
421	The field trees (2 projects)	Creation	Public	31.094,40
341 A	Study of Maritime pine trees	Study	Public	4.000,00
341 B	Study of massive Aigoual	Study	Public	13.081,75
341 B	Communication Grand Site Navacelles	Creation	Public	6.007,56
341 B	Sweet chestnut valorisation	Creation	Public	No data
323 E	Rehabilitation Heritage of Upper Cévennes	Creation	Public	No data
331	Education how to build dry stone walls	Study	Public	17.489,27
323 E	Cévennes school of dry stone	Creation	Public	39.999,97
421	Promotion of UNESCO site gate, Pays Cévennes	Creation	Public	8.497,10
421	Promotion of UNESCO site gate, Ganges	Creation	Public	5.021,01

Source: LAG Cévennes, 2014

2. Implementation challenges and spatial overlapping

During the implementation of certain measures and a beginning of projects, it comes to certain challenges. One of the challenges in France is spatial overlapping of institutions, laws, regulations, organizations and strategies.

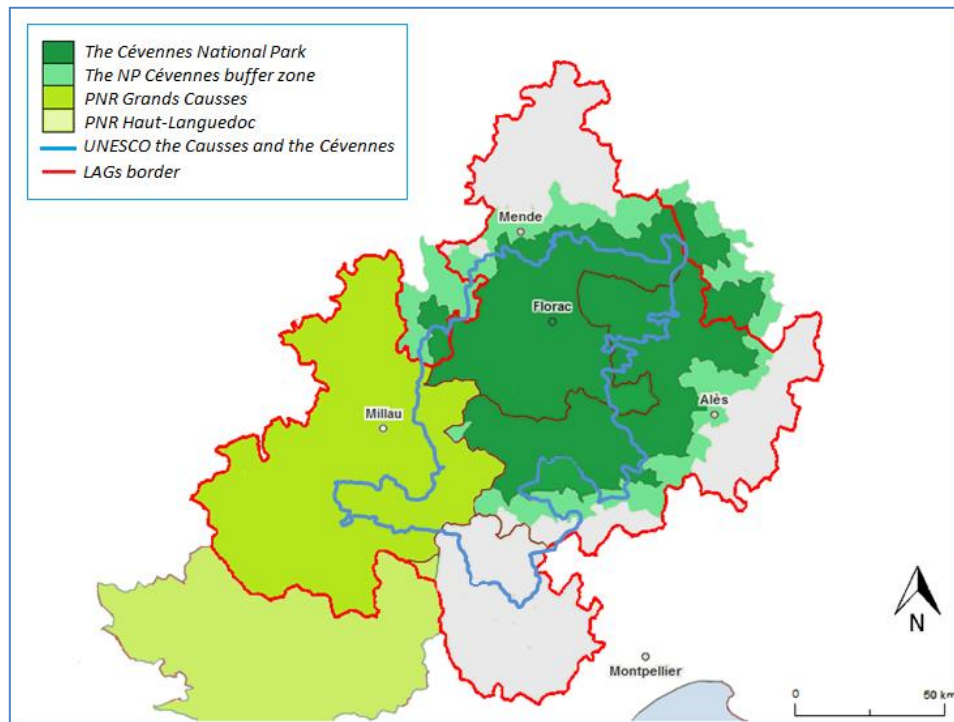
From the start, in France, there are four levels of territorial organization, municipalities, departments, regions and the State. These first three levels represent territorial communities and areas for state actions by the mayor, the prefect and the regional prefect. Also, there are subdivisions within

¹³ http://www.reseau-rural-languedoc-roussillon.eu/sites/default/files/file/leader_lr_gal_cevennes_fr.pdf

departments called *arrondissement* represented by sub-prefect. In order to avoid the risk of dispersion of local public policies an inter-communal level has been developed, *communauté de communes*. Afterward, Rural Development policy has series of different state institutions and agencies which are organised in a highly hierarchical structure. In Rural Development Pillar, there are actors of professional interests and communities then civil society sector represented by associations or local and national NGOs particularly in the environmental domain and finally non-state and non local government actors (Buller, 2000). Rural Development policy in France is decentralised and the Rural Development Programme of France mainland adopted by the European Commission is guideline for regional programmes. Besides administrative structure, on this territory of four LAGs there is spatial overlapping of certain protected areas and their buffer zones, cultural heritage protection and new tools for environmental protection such as Natura 2000.

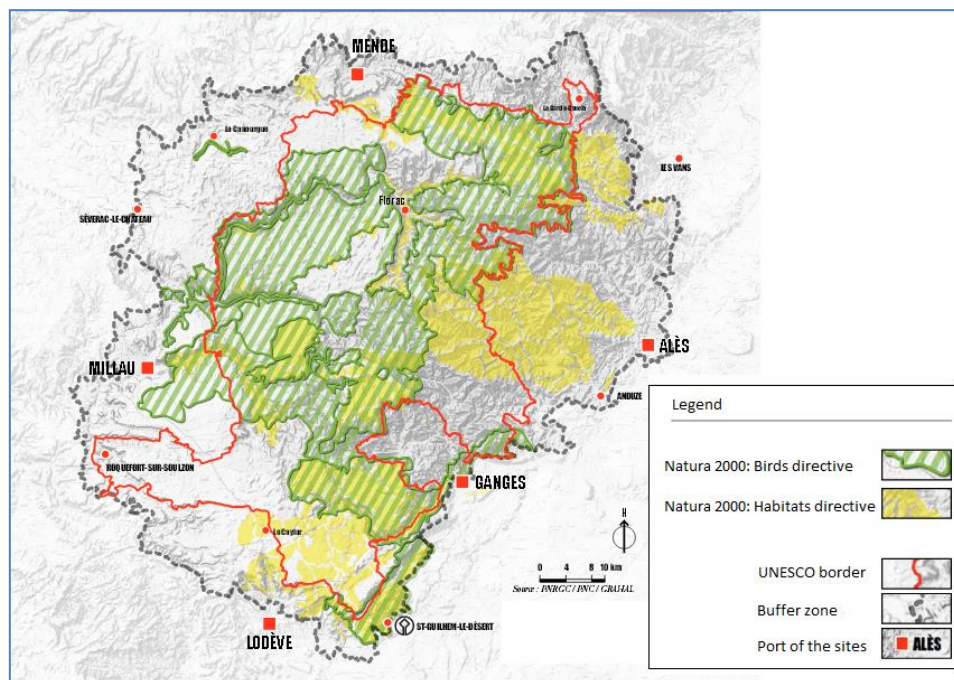
This area with the upland landscapes has been shaped by agro-pastoralism over three millennia. With this protection and preservation, it is necessary to manage this area in appropriate way. Environmental, economic and social issues are threats for cultural landscapes. The *Causses* and the *Cévennes* with their area are already part of protected areas, the National Park *Cévennes* and the Regional Natural Park *Grands Causses* (Map 5). The entire area of UNESCO site is protected as natural of cultural heritage but only the core of the Cévennes National Park is protected for both. The National Park is founded in 1960 and *PNR Grands Causses* in 1995. Policies of the PNR are determined by a *Syndicat de collectivités*, a public body that brings together all communes which are part of PNR and other bodies which can provide services. The *Centre permanent d'initiatives pour l'environnement des Causses méridionaux* (CPIE) is one body in the Departments of *Gard* and *Hérault*, which enables these collectives to prepare and implement policies and activities of common interest. CPIE gathers 28 *communes* in those two departments. Also, there are two protected sites (Grand site) in this area; *Gorges du Tarn* and *de la Jonte* and their changes can be only approved by the relevant Minister and the prefects. Also, there are architectural groups and small villages which are designated as *Zones de protection du patrimoine architectural, urbain et paysager* (ZPPAUP). “*There is a need for tighter protection for the overall landscape to protect cultural attributes in response to identified threats and a range of complementary measures to coordinate and strengthen existing protection will be put in place by 2015*” (UNESCO, 2011a). In addition, more than half of area is covered with Natura 2000 network (Map 6), which is important for stakeholders who want to apply for certain EU project.

Map 4: Spatial overlapping in French four LAGs



Source: author, 2014

Map 5: The Causses and the Cévennes and Natura 2000 sites



Source: UNESCO, 2011b

Chapter II: Agri-environment in EU tools in Croatia

From the start of the integration process in Europe, during which European Union is created in its present form, there is a possibility for all European countries to become member of European Union. Over time, the EU has more closely defined the requirements that candidates for membership must have, such as respect for human dignity, freedom, democracy, equality, the rule of law and respect for human rights and the rights of minorities (*acquis communautaire*). Croatia established itself as an independent republic after dissolution of the former Socialist Yugoslav Federation in 1991. Relation between Croatia and European Union begins with an international recognition of the Republic of Croatia as an independent sovereign state on January 15, 1992. Since 1992, relations were developed gradually but since 2000 they were intensified, after following a series of steps leading to negotiations on Croatian accession to the European Union, their completion and signing of the *Treaty of Accession* of the European Union¹⁴. In the Table below there is chronology of Croatian integration in EU.

By signing the *Stabilisation and Association Agreement* in October 2001, the Republic of Croatia for the first time enters into contractual relations with the EU. This was the most important formal step in the process before applying for full membership in 2003. The European Commission proposed the Stabilisation and Association Process in May 1999 with the aim of achieving a comprehensive stabilisation of the transition states of South Eastern Europe (Albania, Bosnia and Herzegovina, Montenegro, Croatia, Kosovo under UN Security Council Resolution 1244, Macedonia and Serbia). The objectives of the Stabilisation and Association Agreement are establishment of political dialogue, alignment of legislation, promotion of economic relations, development of free trade zones, ensuring regional cooperation and promoting cooperation in many other areas.

After becoming candidate state in 2004, Croatia has started negotiations in 2005. Negotiations on Croatian accession to the European Union, involved the 35 negotiating chapters and in the June 2011 negotiations have ended. Conclusions of negotiations on all chapters were installed as the *Treaty of Accession* and it was signed on 9 December 2011 in Brussels, by which Croatia became an acceding country. *Treaty* had to be ratified by all EU Member States and the Republic of Croatia to enter into force. On January 22 2012, citizens gave support to EU membership with 66.27%¹⁵ votes in a referendum. After positive results of the referendum and following the ratification of the *Accession Treaty* in the Croatian Parliament and all member states Croatia was ready to become new EU member.

On 1 July 2013, Croatia became 28th Member State of European Union. Croatia completed accession to the EU after a decade of carrying out all the reforms needed to bring it into line with EU laws and standards.

¹⁴ http://www.mvep.hr/files/file/publikacije/Hrvatska_na_putu_2012.pdf

¹⁵ 66.27% for, 33.13% against, 0,6% invalid or blank votes, voter turnout 43.51%
<http://www.izbori.hr/2012Referendum/rezultati/rezultati.html>

Table 8: Chronology of relations between Croatia and EU, important dates¹⁶

Date	Event
15th January 1992	European Community and its Member States recognized the Republic of Croatia as an independent and sovereign state
29 th April 1997	Council of the European Union, as part of its regional policy, determine the political and economic conditions for the development of bilateral relations with Albania, Bosnia and Herzegovina, Croatia, Macedonia and SR Yugoslavia
26 th May 1999	<i>Stabilisation and Association Process</i> for Albania, Bosnia and Herzegovina, Croatia, Macedonia and the SR Yugoslavia was established based on proposals from the European Commission
9 th March 2000	EC delegation was opened in Croatia
24 th November 2000	Zagreb Summit launched the <i>Stabilisation and Accession Process</i> for five countries of South-Eastern Europe (Croatia, Bosnia and Herzegovina, Macedonia, Albania and Socialist Republic of Yugoslavia)
5 th December 2000	Council of the European Union adopted Regulation on Community Assistance for Reconstruction, Development and Stabilisation - CARDS
29th October 2001	<i>Stabilisation and Accession Agreement</i> signed
21 st February 2003	Croatia applied for EU membership
20 th April 2004	European Commission issued positive opinion on Croatia's application for EU membership application
18th June 2004	European Council confirmed Croatia as candidate country
15 th October 2004	<i>Parliamentary Committee for Stabilisation and Accession</i> (Croatia – EU Joint Parliamentary Committee) established in the Croatian Parliament
19 th January 2005	National Committee as a special working body tasked to monitor the negotiations on the accession of the Republic of Croatia to the European Union established
1 st February 2005	<i>Agreement on Stabilisation and Association</i> entered into force
3rd October 2005	Accession negotiations launched
20 th October 2005	"Screening" stage of accession negotiations began
12 th February 2008	The Council of the European Union adopted the new Accession Partnership
30th June 2011	EU closed accession negotiations with Croatia
1 st December 2011	European Parliament gave its consent to Croatia's EU membership
9th December 2011	Croatia signed the Treaty of accession to the European Union
22 nd January 2012	Referendum on Croatian accession to the European Union
9 th March 2012	Croatian Parliament ratified Treaty of accession of the Republic of Croatia to the European Union
1st July 2013	Croatia became 28th Member of EU

¹⁶ <http://www.sabor.hr/0003>, http://www.mvep.hr/files/file/publikacije/MEI_hr_web_pass.pdf

I. Agriculture and environment as two separate sectors in pre-accession EU tools

Pre-accession funds of the EU are funds from the budget of the European Union designed for non-member countries (Assistance programs - for example CARDS programme) and for the candidate countries for EU membership (Pre-accession programs - for example, programs PHARE, ISPA, SAPARD and IPA) with the aim of implementing political, economic and institutional reforms and pre-accession preparations for joining the EU, and thus the use of the Structural funds and the Cohesion Fund.

1. First generation of pre-accession EU funds

General overview and contracting rates in Table 9 show that Croatia has successfully used the pre-accession funds. The rate of implementation is high, performance and efficiency, but opinion of the European Commission was that Croatia is not that efficient and ready for new challenges.

Table 9: Pre-accession programmes in Croatia, allocated/contracted in million €¹⁷

	CARDS 2003	CARDS 2004	Phare 2005	Phare 2006	ISPA 2005-2006
Awarded funds (EU)	29.37	46.57	69.52	60.46	59.00
Awarded funds (NC)	0	0	9.51	9.96	43.28
Total amount of awarded funds	29.37	46.57	79.03	70.43	107.34
Contracted funds (EU)	28.69	44.06	60.43	51.21	57.49
Contracted funds (NC)	0	0	4.74	5.03	47.889
Total amount of contracted funds	28.69	44.06	65.17	56.24	105.148
Contracting rate (EU)	97.68%	94.61%	86.90%	84.69%	97.96%

A. CARDS, Phare, ISPA

After signing of the *Stabilisation and Association Agreement* between Croatia and the European Union in October 2001, a new financial instrument CARDS (*Community Assistance for Reconstruction, Development and Stabilisation*) was introduced. CARDS programme was available to Croatia in the period 2000-2004 but the regional component of the programme was opened until 2006. The objectives of the CARDS programme were supporting the participation in the Stabilisation and Association process. Through the national component of the CARDS programme, Croatia financed 119 projects in total, in the field of democratic stabilisation, economic and social development, judiciary and internal affairs, strengthening of administration capacities, protection of environment and natural sources¹⁸.

¹⁷ Central Finance and Contracting Agency, <http://www.safu.hr/en/home/list-of-all-contracted-projects-from-programmes-cards-phare-ispa-and-ipa>

¹⁸ <http://www.hbor.hr//Art1185>

After acquiring the status of a candidate country for full membership in the European Union, pre-accession programs Phare, ISPA and SAPARD were opened. These programmes represented assistance to the particularly demanding areas of harmonisation with the EU *acquis communautaire*; assistance in the strengthening of institutional and administrative capacity (Phare), environmental protection and transport (ISPA) and agriculture and rural development (SAPARD).

The Phare programme (fr. *Pologne et Hongrie: assistance à la restructuration économique*) has been established in 1989 as EU's pre-accession instrument. The purpose was to assist candidate countries of Central and Eastern Europe in their preparations for full membership in the EU. Croatia as candidate country in middle of 2000s applied and used Phare programme for institutional building (mainly through twinning projects and services) measures and for economic and social cohesion promotion (mainly through supply component). For Republic of Croatia Phare programme has been available in period 2005-2006. Since then € 167 million has been allocated within Phare 2005 and Phare 2006 programme. The Republic of Croatia has been very successful in contracting Phare 2005 programme, whereas 88.34% has been contracted. Implementation of the Phare projects was planned for end of the 2010¹⁹. The Phare programme included national, multi-beneficiary and cross-border projects.

ISPA (Instrument for Structural Policies for Pre-accession) as one of the EU structural policy pre-accession instruments became available to Croatia when it became a candidate country. For period 2005-2006 grants were available for sectors of environment and transport. ISPA priorities in preparing Croatia for accession were to prepare with EU policies and procedures, to help to raise environmental standards and to expand and link with trans-European transport networks. By that ISPA period, six Financial Agreements have been signed between Croatia and EU for the following measures: (1) Rehabilitation of the railway line *Vinkovci - Tovarnik - State Border*, (2) *Karlovac Water and Waste Water*, (3) *Bikarac Regional Waste Management Centre*, (4) Technical assistance to the *Central Finance and Contracting Unit (CFCU)* and to the *National ISPA Coordinator*, (5) IPA Project Pipeline Preparation - transport and (6) IPA Project Pipeline Preparation - environment²⁰. For example, one project concerning environment, the project of the *Bikarac Regional Waste Management Centre*, was approved in 2006. The goal of the project was construction of the new municipal landfill adjacent to the existing landfill in *Bikarac*. Overall investment value was € 8.8 million (ISPA grant was € 6 million and national sources were € 2.8 million²¹).

B. SAPARD - pre-accession program focused on the rural development

The goal of SAPARD (*Special Accession Programme for Agriculture and Rural Development*) programme was to assist Croatia in agriculture and rural development. According to SWOT analysis and National Agricultural and Fishery Strategy of the Republic of Croatia there were three identified development priority areas of the SAPARD Programme. One specific objective per priority area has been defined and made operational through measures in Table below.

¹⁹ Central Finance and Contracting Agency <http://www.safu.hr/en/about-programs/first-generation-of-eu-funds/phare>

²⁰ Central Finance and Contracting Agency <http://www.safu.hr/en/about-programs/first-generation-of-eu-funds/ispa>

²¹ <http://www.mzoip.hr/default.aspx?id=9293>

Table 10: Specific objectives per selected priority, SAPARD²²

Priority	Specific Objective	Corresponding Measure
1. Development of the rural economy	Strengthening and improvement of the agricultural production capacity	1 Investments in agricultural holdings
2. Improving the access to markets	Strengthening and improvement of the capacity for processing and marketing of agricultural and fisheries products	2 Improving the processing and marketing of agricultural and fisheries products
3. Development of rural infrastructures	Creating better living conditions in rural areas by improving rural infrastructures	3 Improvement of infrastructure in rural areas with specific handicaps

Supportive measure: 4 Technical assistance, information and publicity campaigns

The Republic of Croatia used available funds for the implementation of first two accredited measures since Croatian institutions were not ready to apply Measure 3 and Measure 4 and the plan was to prepare those two measures in IPARD Programme. The budgetary allocations for the implementation of Measure 3 and Measure 4 were re-allocated to Measure 1 and 2. For SAPARD measures the total value of EU financial contribution amounted to € 25 million while the additional financial support from the Croatian national budget amounted to € 8.33 million. Within the SAPARD an assistance fund was established with the total value of € 33.33 million²³. In period 2006-2009 there were total four calls for proposals for the allocation of funds from the SAPARD programme, one for each year. All contracted projects are completed and paid, and the implementation of the SAPARD program ended in late 2009 and it has been replaced by the IPARD programme²⁴. During the whole period of the SAPARD programme implementation out of 139 received applications and finally 37 projects were supported and paid (19 for Measure 1 and 18 projects for Measure 2). Based on the fact that the final level of the SAPARD Programme funds usage was 48.18%, the financial efficiency of the SAPARD Programme can be evaluated as low (Table 11).

Table 11: SAPARD Programme funds allocations and utilisation for Measure 1 and Measure 2²⁵

Measures	Total EU assistance	Total Croatian assistance	Total public assistance	Public assistance paid to beneficiaries	Total declared eligible beneficiary project costs	Absorption of public assistance
Measure 1	61.86	20.62	82.48	27.70	57.22	33.58%
Measure 2	129.67	40.21	160.85	89.53	179.90	55.66%
Total	182.50	60.83	243.33	117.23	237.12	48.18%

²² <http://www.mps.hr/ipard/UserDocsImages/dokumenti/SAPARD/FINAL%20AIR%20.pdf>

²³

<http://www.mps.hr/ipard/UserDocsImages/dokumenti/SAPARD/EX%20POST%20EVALUATION%20REPORT.pdf>

²⁴ <http://www.mps.hr/default.aspx?id=4788> (8.11.2014)

²⁵ Note: in million HRK with exchange rate 1 Euro = 7.3 HRK, the total amount of aid - 75% came from the EU and 25% from the State Budget

<http://www.mps.hr/ipard/UserDocsImages/dokumenti/SAPARD/EX%20POST%20EVALUATION%20REPORT.pdf> according to *Directorate for Rural Development – SAPARD/IPARD Managing Authority, 2011*

2. IPA pre-accession EU funds

In 2007, pre-accession funds had a significant policy reform. Several European Union programmes and financial instruments (CARDS, Phare, ISPA and SAPARD) were replaced with one single instrument and legal framework, the *Instrument for the Pre-Accession Assistance* – IPA. IPA is divided between five components (Table 12). IPA components III-V are designed to mirror closely structural, cohesion and rural development funds, in preparation for the management of such funds after accession²⁶.

Table 12: IPA components and implementing bodies

IPA Components		Implementing body
Component I	Transition Assistance and Institution Building	Central Financing and Contracting Agency (CFCA)
Component II	Cross-Border Co-operation	Regional Development Agency
Component IIIA	Regional Development: Transport	<i>HŽ Infrastruktura</i> and CFCA
Component IIIB	Regional Development: Environment	Environment Protection and Energy Efficiency Fund, <i>Hrvatske vode</i> and CFCA
Component IIIC	Regional Development: Regional Competitiveness	CFCA
Component IV	Human Resources Development	Croatian Employment Service, Agency for Vocational Education and Training and Adult Education
Component V	Rural Development (IPARD)	Paying Agency for Agriculture, Fisheries and Rural development

The financial value of the IPA programme for the Republic of Croatia in the period from 2007 to 2013 was € 997.6 million. IPA projects contracted in 2012 and 2013 will be implemented by the end of 2017 (Table 13).

Table 13: Overview of IPA components and financial allocation for the period 2007 -2013²⁷

IPA Components	2007 (M€)	2008 (M€)	2009 (M€)	2010 (M€)	2011 (M€)	2012 (M€)	2013 (M€)	2007-2013 (M€)
IPA I	49.61	45.37	45.60	39.48	39.96	39.97	17.44	277.43
IPA II	9.69	14.73	15.90	15.60	15.87	16.44	9.75	97.98
IPA III	45.05	47.60	49.70	56.80	58.20	57.45	30.09	344.89
IPA IV	11.38	12.70	14.20	15.70	16.00	15.90	8.55	94.43
IPARD	25.50	25.60	25.80	26.00	26.50	25.82	27.70	182.92
Total	141.23	146.00	151.20	153.58	156.53	155.59	93.52	997.65

²⁶ http://ec.europa.eu/regional_policy/thefunds/ipa/works_en.cfm

²⁷ <http://www.strukturnifondovi.hr/ipa-2007-2013>

A. IPA I - Transition Assistance and Institution Building Component

IPA Component I was actually a kind of continuation of activities from Phare programme, with an exception of Economic and Social Cohesion component. All projects were related to the field of Justice, Human Rights and Antidiscrimination, NGO strengthening, Cultural and Natural heritage protection, Taxation, Transport, Health and Environmental Protection and beneficiaries were state administration bodies, institutions and companies in state ownership and non-profit organizations. Support was from 85 to 90% for twinning and technical assistance. Managing body is the Ministry of Regional Development and EU Funds, Directorate for Strategic Planning, Sector for EU Programmes and the implementing body is the Central Finance and Contracting Agency²⁸.

B. IPA II - Cross-Border Cooperation

Because of the length of the Croatian border and Croatian recent history, Cross-Border Co-operation was very important for regional development in Croatia. Beneficiaries of this cooperation were associations, institutions, regional and local government bodies, centres for research and development, agricultural associations, etc. The total amount of public subsidies was 85% and 15% was private. Croatia participates in eight cross-border cooperation:

- (1) Cross-border programmes with EU members countries: *IPA Cross-border Co-operation Programme Hungary-Croatia, IPA Adriatic Cross-border Cooperation Programme and IPA Cross-border Programme Slovenia-Croatia*;
- (2) Cross-border programmes with non-EU member states: *IPA Cross-border Programme Croatia-Serbia, IPA Cross-Border Programme Croatia-Bosnia and Herzegovina as well as IPA Cross-Border Programme Croatia-Montenegro*;
- (3) Transnational programmes: *South East European Transnational Cooperation Programme (SEE) and Transnational Territorial Cooperation Programme (MED)*²⁹.

C. IPA III – Regional Development

IPA component III, Regional Development was made of three Operational Programmes: *Transport, Environment and Regional Competitiveness*. The beneficiaries were state administration bodies, public and scientific institutions and business community. One of the aims of this thesis was environmental measures in Croatia so in next paragraph there would be words about that large Operational Programme *Environment*.

Priorities of Operational Programme *Environment* were: (1) *Development of Waste Management Infrastructure for establishing an Integrated Waste Management System in Croatia* (to establish new waste management centres at county and regional levels and to eliminate sites highly polluted by waste), (2) *Protection of Croatia's Water Resources through Improved Water Supply and Waste Water Integrated Management Systems* (the establishment of modern water supply systems and networks, the construction of wastewater treatment plants and upgrading the sewerage network) and (3) *Technical Assistance* (efficient management and implementation of the programme)³⁰. IPA grants for the period from 2007 to 2013 for the entire OP *Environment* was € 131.3 million³¹. Finally, two counties waste management centres were planned with this fund and several water management projects with *Hrvatske vode* (Croatian Waters) as responsible authority for this measure.

²⁸ <http://www.safu.hr/en/about-programs/ipa/ipa-i>

²⁹ <http://www.safu.hr/hr/o-programima-eu/ipa/ipa-ii>

³⁰ http://ec.europa.eu/regional_policy/thefunds/ipa/croatia_environment_en.cfm

³¹ <http://www.mzoip.hr/default.aspx?id=9556>

D. IPA IV - Human Resources Development

Human Resources Development as IPA component IV was preparing candidate country for European Social Fund. Human Resources Development Operational Programme had four priority axes: (1) *Enhancing access to employment and sustainable inclusion in the labour market*, (2) *Reinforcing social inclusion of people at a disadvantage*, (3) *Enhancing human capital and employability* and (4) *Technical assistance*. The beneficiaries were companies or institutions, which provided services related to human resources management, NGOs, regional employment offices, non-profit organizations, public institutions, employers' associations and unions, Croatian Chamber of Economy and local and regional self-government units. Total amount of grant was 60.15%³².

E. IPARD

Rural Development (IPARD) as fifth component of IPA programme was direct continuation of the SAPARD programme. IPARD in Croatia consisted three priorities and corresponding measures (Table 14) chosen by the members of the authority body (Ministry), employees of the other ministries and representatives of all relevant economic, social and ecological partners.

Table 14: IPARD priorities and measures

Priorities	Measures	Measure name
Improving market efficiency and implementation of Community standards	M 101	<i>Investments in agricultural holdings to restructure and to upgrade to Community standards</i>
	M 103	<i>Investments in the processing and marketing of agriculture and fishery products to restructure those activities and to upgrade them to Community standards</i>
Preparatory actions for implementation of the agri-environmental measures and local rural development strategies	M 201	<i>Actions to improve the environment and the countryside</i>
	M 202	<i>Preparation and implementation of local rural development strategies</i>
Development of rural economy	M 301	<i>Improvement and Development of Rural Infrastructure</i>
	M 302	<i>Diversification and Development of Rural Economic Activities</i>
Technical assistance M 501		

Source: IPARD 2007-2013

Within IPARD, number of contracted projects (6 measures) in Croatia was 691 with total amount of investments of almost € 260 million. Total amount of support was near € 150 million with EU part of 75% and 80% depending on, which kind of projects (Table 15).

³² <http://www.safu.hr/en/about-programs/ipa/ipa-iv>

Table 15: Number of all contracted projects and amount of support (IPARD 2007-2013)

	Numb. of projects	Total amount of investments (HRK)	Total amount of support (HRK)	EU part ³³ (HRK)
Total (M101/103)	340	1.429.800.282,51	730.792.760,31	548.094.569,78
Total (M302)	169	207.170.456,65	103.562.913,75	77.672.184,95
Total (M301)	90	243.275.051,82	243.275.051,82	182.456.288,76
Total (M501)	50	1.830.159,70	1.830.159,70	1.464.127,77
Total (M202)	42	37.800.000,00	37.800.000,00	30.240.000,00
Total (M101, 103, 301, 302, 501, 202)	691	1.919.875.950,68	1.117.260.885,58	839.927.171,26

Source: www.apprrr.hr (November, 2014)

The framework for the measure 201 “*Actions to improve the environment and the countryside*” within priority Preparatory actions for implementation of the agri-environmental measures, was defined within three pilot areas: Nature Park of *Velebit* and *Lonjsko polje* and Zagreb County. Measure within the IPARD programme was aimed to maintain positive role of agriculture in creating and preserving of semi-natural habitats and landscapes. Pastures and grasslands in Croatian karst areas were potential sites for such measures. Other objective was reduction of existing and prevention of possible future negative environmental impacts. These measures were aimed at intensive arable production in Pannonian Croatia³⁴. Because it was pilot project, there was no call for proposals for this measure.

Measure 202 “*Preparation and implementation of local rural development strategies*” was beginning of LEADER implementation in Croatia. Measure was divided between 2 sub-measures: sub-measure 1 “*Acquisition of skills, animating the inhabitants of LAG territories*” and sub-measure 2 “*Implementation of local development strategies*”. The aim of the sub-measure 1 was to support capacity building among rural inhabitants in order to enhance their skills in local democracy and government and to encourage them to set up a Local Action Group (LAG). Specific objectives of the sub-measure were supporting information and promotion activities regarding the LEADER method, support identifying and setting up LAGs, supporting capacity building and training of LAG members and inhabitants of LAG territories, supporting the preparation of local development strategies and supporting territorial analysis, studies, consultation and expert support, etc. The aim of sub-measure 2 was to ensure that local needs and demands are covered through implementation of projects, which are in line with the LDS and IPARD Programme. The operational objectives were to support implementation of LDS and to support running LAGs (IPARD 2007-2013)

³³ For measures 101, 103, 301 and 302 EU co-financed with 75% (25% is co-financed by Croatia), for M202 and M501 EU part was 80% (IPARD 2007-2013)

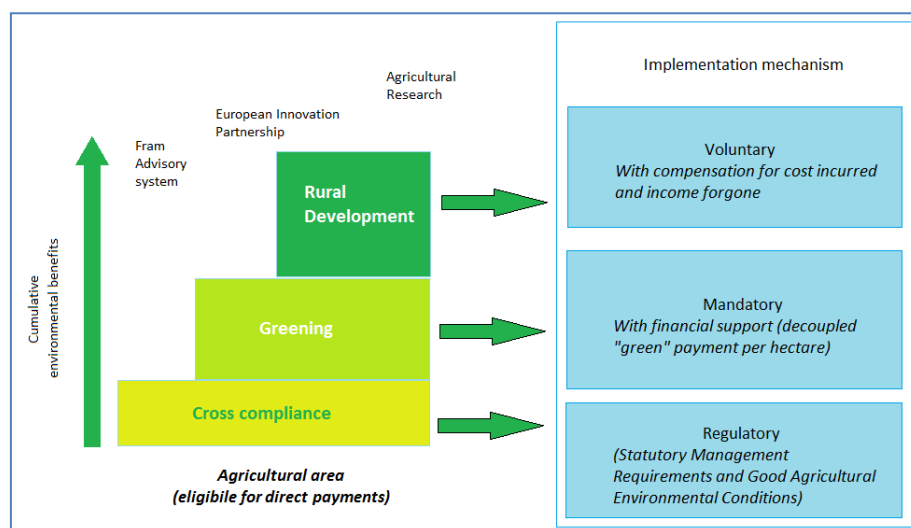
³⁴ <http://www.mps.hr/ipard/default.aspx?id=29>

II. Turn with Common agriculture policy 2014-2020 – agri-environment identified as an opportunity

The Common Agricultural Policy (CAP) is a set of laws and practices that European Union has adopted in order to achieve a common, unified policy on agriculture. CAP is the most comprehensive of the all EU economic policies for more than 50 years. It aims to ensure long-term maintenance of agriculture as the core of a living countryside. It is also one of the most important areas of EU institutions, both in terms of coverage of the *acquis communautaire* and in terms of the EU budget. In last more than twenty years, CAP had several successive reforms, which have improved market orientation for agriculture, income support and integration of environmental requirements and last policy reform was in 2013. The CAP is built of two pillars, Direct Payment and Rural Development and long-term CAP objectives are: viable food production, sustainable management of natural resources and climate action and balanced territorial development of rural areas. To achieve CAP objectives, Reform 2013 is focused on the competitiveness and sustainability of the agriculture with improving the targeting and efficiency of policy instruments³⁵.

CAP will try to achieve competitiveness with changes to market mechanisms such as removal of production constraints. Cooperation and innovative measures should also improve competitiveness of farming. Sustainable production methods should decrease the pressure on natural resources, while cross compliance is basic layer of environmental requirements and obligations for full CAP funding. The new policy instrument in first Pillar is *Green Direct Payment* for farmers who maintain permanent grassland and have ecological approach and crop diversification (Fig. 2). And finally, sustainability will be implemented through agri-environmental-climate measures, organic farming, Natura 2000 areas, forestry measures and others measures. Better targeting of support, a more equitable distribution of payments and a strategic approach to spending, enhance third objective, effective and efficient CAP. Performance of the CAP will also benefit from a more balanced and transparent distribution of direct payments among countries and farmers. This is connected by internal convergence within countries where payments will no longer be based on uneven historical references but it will be on more converging per hectare payment at national or regional level in the Member State³⁶.

Figure 2: The new greening architecture of the CAP³⁷



³⁵ All of the existing restrictions on production volumes for sugar, dairy and the wine sector will end.
http://ec.europa.eu/agriculture/policy-perspectives/policy-briefs/05_en.pdf

³⁶ http://ec.europa.eu/agriculture/policy-perspectives/policy-briefs/05_en.pdf

³⁷ Source: <http://ec.europa.eu/ireland/images/agriculture-image-4-green-cap.jpg>

For Croatia, EU accession and CAP funds will make significant changes in agricultural sector. In the framework of the accession negotiations between Croatia and EU there were discussions about total allocations for two pillars and their funds (European Agricultural Guarantee Fund - EAGF and European Agricultural Fund for Rural Development - EAFRD). Thus, direct payments foresee a total envelope of € 373 million a year with a gradual increase in funding over next 10 years. Also, Croatia already has been transferred 15% of its Second Pillar rural development funds (EAFRD) to Direct Payment Pillar as one of possibility in CAP 2014-2020. Additional amounts for Direct Payment Pillar can come from de-mined agricultural land, which is € 9.6 million a year but it depends on actual de-mined ha. Allocation for the second Pillar will be € 320 million a year from the fund EAFRD 2014-2020³⁸. Managing authority for Direct Payments and Rural Development is Ministry of agriculture, Directorate for Management of EU Funds for Rural Development, EU and International Cooperation while implementing authority is *Paying Agency for Agriculture, Fisheries and Rural Development*.

1. First pillar - Direct Payment

Direct payments are payments granted directly to farmers under certain models of support. Objectives are to ensure a safety net for farmers in the form of a basic income support, decoupled from production and stabilising farmers' income. Also, direct payments contribute to providing basic public goods delivered through sustainable farming³⁹.

During 2014, Croatia and other Member States had to inform European Commission of their choices for direct payments for period 2014-2020. Model of direct payments, adopted by the Croatian government, will start on January 1, 2015, and the first payments under this scheme can be expected by mid-2016. Model is build of *Basic Payment Scheme*, *Greening* (payment per hectare for respecting certain agricultural practices beneficial for the climate and the environment), *Redistributive payment* (for first hectares), *Coupled support* (payment linked to a specific product) and *Young farmers Scheme* (farmers under 40). Model is focused on more demanding and more exposed agricultural productions as dairy farms, meat and milk producers (beef, veal, sheep and goat farms) and to sugar beet growers and vegetables and fruit producers. A maximum of € 2.5 billion will be available for direct payments to Croatian farmers from 2015 to 2020, with the European Union part of 60% of that amount⁴⁰. Table 16 presents distribution of total envelope for year 2015.

³⁸ <http://www.mps.hr/default.aspx?id=11755>

³⁹ http://ec.europa.eu/agriculture/direct-support/direct-payments/index_en.htm

⁴⁰ Croatian Ministry of Agriculture, Hrvatski model izravnih plaćanja u programskog razdoblju EU 2015.-2020.g.

Table 16: Distribution of Direct payments, 2015

Model	% of the 1 st Pillar envelope	Total amount for 2015 (with the 100% national top-up) in €
1. Basic Payment Scheme (BPS) ⁴¹ total	43	185.082.521
BPS without national reserve	41.71	179.530.045
National reserve within the BPS	3% of BPS	5.552.475
2. Greening	30	129.127.340
3. Redistributive Payment	10	43.042.446
4. Coupled Support	15	64.563.670
5. Young farmers Scheme	2	8.608.489
Total envelope	100	430.425.000 ⁴²

Source: Croatian Ministry of Agriculture, *Hrvatski model izravnih plaćanja u programskog razdoblju EU 2015.-2020.g.*, www.mps.hr

„Payments to farmers for the converting to, or maintaining, organic farming should encourage them to participate in such schemes thereby responding to the increasing demand of society for the use of environmentally friendly farm practices and for high standards of animal welfare. In order to increase synergy in biodiversity, benefits delivered by the organic farming measure, collective contracts or co-operation between farmers should be encouraged to cover larger, adjacent areas. In order to avoid a large-scale return by farmers to conventional farming support should be given to both conversion and maintenance measures“⁴³. Member States should also ensure that payments to farmers do not lead to double funding under this Regulation and Regulation (EU) No 1307/2013 (DP).

2. Second Pillar – Rural Development and EAFRD

Rural Development Policy as second Pillar is implementing through national and/or regional rural development programmes (RDPs) for a seven-year period. In period 2014-2020, Rural Development Policy has three long-term strategic objectives: (1) *improving the competitiveness of agriculture*; (2) *the sustainable management of natural resources and climate action*; and (3) *a balanced territorial development of rural areas*. These three objectives have more detailed expression through priorities. Member States built their Rural Development Programmes based upon at least four out of the six common EU priorities, which are:

- (1) *Fostering knowledge transfer and innovation in agriculture, forestry, and rural areas;*
- (2) *Enhancing farm viability and competitiveness of all types of agriculture in all regions and promoting innovative farm technologies and sustainable management of forests;*
- (3) *Promoting food chain organization, including processing and marketing of agricultural products, animal welfare and risk management in agriculture;*
- (4) *Restoring, preserving and enhancing ecosystems related to agriculture and forestry;*
- (5) *Promoting resource efficiency and supporting the shift towards a low carbon and climate resilient economy in agriculture, food and forestry sectors;*

⁴¹ BPS is grant based on the right to payment that is activated by the eligible agricultural land registered in ARKOD. Users must be in the Registry and have more than 1 ha (Hrvatski model izravnih plaćanja)

⁴² Amount with transferred 15% from EAFRD

⁴³ <http://www.europarl.europa.eu/sides/getDoc.do?type=TC&reference=P7-TC1-COD-2011-0282&format=PDF&language=EN>

(6) *Promoting social inclusion, poverty reduction and economic development in rural areas.*

Each Rural Development Policy priority identifies focus area, which provide the basis for programming of the European Agricultural Fund for Rural Development⁴⁴ (EAFRD) support to EU rural areas⁴⁵. For Croatia, EAFRD became available upon accession to the European Union. Its utilization is prepared through SAPARD and IPARD. The EAFRD will contribute to increase the competitiveness and improving environmental performance by providing support for restructuring, technological modernisation and generation renewal. Also, the balanced territorial development and sustainable use of natural resources are targeted. Total allocation for period 2014-2020 is € 2 billion (RDP of Croatia 2014-2020). Months of multidisciplinary work resulted with Rural Development Programme of the Republic of Croatia for the period 2014-2020 and in July 2014 it was sent for observation to the European Commission. According to Croatian needs, 16 measures (17 with Measure *Technical assistance*) with matching operations and sub-measures were chosen for that period. In Table below, there is the list of the all selected measures.

Table 17: Selected measures in Croatian Rural Development Programme (2014-2020)

Measures	
M01	<i>Knowledge transfer and information actions</i>
M02	<i>Advisory services, farm management and farm relief services</i>
M03	<i>Quality schemes for agricultural products and foodstuffs</i>
M04	<i>Investments in physical assets</i>
M05	<i>Restoring agricultural production potential damaged by natural disasters and catastrophic events and introduction of appropriate prevention actions</i>
M06	<i>Farm and business development</i>
M07	<i>Basic services and village renewal in rural areas</i>
M08	<i>Investments in forest area development and improvement of the viability of forests</i>
M09	<i>Setting-up of producer groups and organizations</i>
M10	<i>Agri-environment-climate</i>
M11	<i>Organic farming</i>
M13	<i>Payments to areas facing natural or other specific constraints</i>
M16	<i>Co-operation</i>
M17	<i>Risk management</i>
M18	<i>Financing of complementary national direct payments for Croatia</i>
M19	<i>Support for LEADER local development (CLLD)</i>
M20	<i>Technical assistance</i>

Source: RDP of Croatia 2014-2020

⁴⁴ A common and coherent overall EU policy framework is established for all European Structural and Investment (ESI) funds including EAFRD to improve coordination between them and strengthen the complementarity of the different programs. http://ec.europa.eu/agriculture/policy-perspectives/policy-briefs/05_en.pdf

⁴⁵ Except EAFRD, several EU funds provide additional support for rural areas: the European Regional Development Fund (ERDF), the European Social Fund (ESF), the Cohesion Fund (CF) and the European Maritime and Fisheries Fund (EMFF).

A. Agri-environment-climate measure as an opportunity to maintain and preserve biodiversity

A prominent role in supporting the sustainable development of rural areas should have Agri-environment-climate payments. “They should further encourage farmers and other land managers to serve society as a whole by introducing or continuing to apply agricultural practices that contribute to climate change mitigation and adaptation and that are compatible with the protection and improvement of the environment, the landscape and its features, natural resources, and the soil and genetic diversity”. Member States should be required to spend a minimum of 30 % of the total contribution from the EAFRD to each rural development programme on climate change mitigation and adaptation as well as environmental issues. Such spending should be made through agri-environment-climate, organic farming payments and payments to areas facing natural or other specific constraints, through payments for forestry, payments for Natura 2000 areas and climate and environment-related investment support⁴⁶. In Rural Development Programme of Croatia, forestry, agri-environment-climate and organic farming measures have significant share of total amount of support (Table 18).

Table 18: Support for investments in chosen measures (2014-2020)

	EAFRD (€)	National Cofinancing (€)	Total (€)
M08 Investments in forest area development and improvment of the viability of forests	70.000.000	13.941.176,46	92.941.176,46
M10 - Agri-environment-climate	188.826.820,00	33.322.380,00	222.149.200,00
M11 - Organic farming	105.101.311,70	18.547.290,30	123.648.602,00
M16 - Co-operation	4.500.000,00	500.000,00	5.000.000,00

Source: RDP of Croatia 2014-2020

Agro-biodiversity is recognized as an important part of biodiversity protection after a long time of nature conservation that was limited only to wild nature. Agricultural management tried to enhance biodiversity and ecosystem functions, especially in the traditional cultural landscapes (Phillips, 1998 in Öllerer, 2013). Traditional landscapes are recognized as important areas that might provide good examples for sustainability. With changes of natural landscapes by changing management practices on agricultural land (especially in areas where extensive large-scale agriculture developed a characteristic biodiversity), large part of the land surface have transformed. That has resulted in major modifications of biodiversity and global carbon cycle and hydrologic cycle (Fahrif, 2007 in Öllerer, 2013). Also, changes are leading to the modification and fragmentation of habitats, degradation of soil, water pollution and over-exploitation (Foley *et al.*, 2005 in Öllerer, 2013). Adriatic Croatian and in this case LAG Škoji's cultural landscape, developed following the long tradition of land-use, is being threatened by the changes that happened in the interaction between humans and the natural environment. The importance of land-use in Croatia is still not well accepted like in other part of EU while researches in ecology for long time have been worked with spatial homogeneity, without considering the heterogeneity of space and the temporal dynamics of landscape. Landscape perspective and land-use is now in the central position in environmental management of EU, which can be seen in building up land-use development plans, ecological economics and in the concept of the ecological network Natura 2000. Also, the High Nature Value farmland concept is recognized as significant part of biodiversity of Europe because those farmlands are strictly connected with extensive management

⁴⁶ <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32013R1305>

practices. The identification and protection of HNV farmlands is recognized by the Rural Development Programmes (Öllerer, 2013).

For the South Eastern European countries, the concept of HNV farmland is a novelty but very extensive characters of agriculture in these countries have been existed and still exist and connection between HNV farming, biodiversity and traditional landscapes is very strong. Currently trends are decline in rural population, in the number of livestock animals and land abandonment. The pre-accession agricultural policy support was completely focused on big intensive farms while HNV farming received no targeted public policy support. It is one of the reasons why there is continuous decline in the number of farmers, which resulting loss of traditional land management practices such as hand mowing, hay making, extensive grazing on common pastures, small scale mosaic cropping etc. National legislation introduced support for less favourable areas, autochthonous breeds and maintenance of common pastures but it is not on satisfying level (Kazakova *et al.*, 2011).

According to Kazakova *et al.* (2011), four examples of the HNV farming systems requiring special and targeted support are distinguished in Croatia; (1) small scale mosaic cropping in western hilly areas; (2) traditional hay making by family members; (3) Mediterranean grasslands historically used for sheep grazing and (4) traditional low input olive groves on the Croatian coast. Mediterranean grasslands with around a million of hectares are not included in the national statistics or in the farm register. These areas are already being abandoned also as dry stone walls as typical cultural landscape. Traditional olive growing is still very well preserved even large part of typical terraces and dry stone walls is abandoned. Reason of well preservation is fact that almost half of families living on the Croatian coast and 93% of families living on islands are growing olives as either their basic or additional working activity.

The State Institute for Nature Protection has been identified the HNV farmland areas in Croatia. In defining HNV area, the basic element was the Corine land cover 2006. Biodiversity data that were used are only proposal of Natura 2000 and Special Protection Areas (SPAs) because data for Prime Butterfly Areas and Important Bird Areas were not available. Classes of pastures and natural grasslands are considered as HNV farmland Type 1 (semi-natural vegetation), while vineyards, fruit trees and berry plantations and olive groves are considered as HNV farmland because the large majority is composed of dry stone walls, margins and natural undergrowth. Moors and heath land, transitional woodland/shrub and land principally occupied by agriculture are considered as indicative HNV farmland. In addition, non-irrigated arable land and permanently irrigated land with sites important for certain threatened farmland birds can be considered as HNV areas. Total HNV area in Adriatic Croatia region is 1.302.946 ha and the share of HNV area is 99.29% one of the highest in the Europe (EEA, 2012).

It took a long period of time to finally realised that intensive agriculture have negative impact on the quality of water, air and soil, which leads to a reduction of biodiversity and landscape characteristics. Mainly monoculture intensive production requires large amounts of fertilizers and pesticides and humus layer decreases over time. Also, that kind of production requires larger arable land which can damage hedges and dry stone walls and reducing hectares of meadows and wetlands. The aim of the *Agri-environment-climate* measure is to encourage farming practices that are beneficial to the environment and to eliminate negative effects of agriculture. Also, this measure encourages biodiversity and genetic resources related to agriculture (RDP in Croatia 2014-2020). This Measure 10 consists of two sub-measures: (1) *Payment for agri-environment-climate commitments* and (2) *Support to conservation of genetic resources in agriculture*. Sub-measure 19.1 comprises 14 types of operation. Those types of operations have been prepared as solutions for Natura 2000 sites within the *Agri-environment-climate* measure preservation of high nature value grasslands, pilot measure for the protection of corncrake (*Crex crex*), pilot for the protection of butterflies, establishment of filed strips, maintaining extensive orchards, maintaining olive groves, preservation of landscape features – stone walls and hedges. Sub-measure 19.2 has three types of operations: (1) *Preservation of endangered autochthonous and protected breeds of domestic animals*; (2) *Preservation of endangered*

autochthonous and traditional varieties of agricultural plants and (3) Preservation, sustainable use and development of genetic resources in agriculture (RDP of Croatia 2014-2020).

„Participation in the measure is voluntary with a five-year period of compliance with the commitments, with possibility to extend commitment period for maximum two additional years. Support is in the form of annual payments per area unit or cattle head/beak as compensation to the beneficiary for loss of income and additional costs resulting from compliance with the special conditions that go beyond the minimum prescribed requirements. Beneficiaries must comply with the cross-compliance provisions“. Beneficiaries of this measure can combine types of operation but beneficiaries from Natura 2000 areas have priority in the allocation of funds. One of the requests is minimum area of an ARKOD (LPIS) parcel for which an application can be submitted is 0.05 ha, the agricultural farm area must be at least 0.5 ha with some exceptions (RDP of Croatia 2014-2020).

The support table of sub-measure 19.1 (Table 19) shows that highest total expenditure is reserved for operation *Integrated farming* as a set of agri-environmental commitments that contribute to the conservation of water, soil, air and environment as a whole. Compared to *Organic farming* measure it is less demanding way of production, but it is certainly more demanding than the conventional agricultural production. For Adriatic Croatia there are opportunities to use some operations, which can maintain and preserve typical agricultural activities and agricultural landscape in that area. Operations like maintaining extensive orchards and olive groves, terrace maintenance and preservation of dry stone walls can change currently inappropriate agricultural practices and improve good practices. The support shall be granted also to the beneficiaries who maintain HNV grasslands and contribute to the conservation of biodiversity and prevent further loss of habitat. High nature value grasslands on which operations will be implemented are divided into three regions which one of them are the Mediterranean area of Croatia up to 200 meters above sea level, and all the islands (RDP of Croatia 2014-2020).

Sub-measure 19.2 emphasizes that the genetic potential is very valuable, especially from the biodiversity view and there is the need to adapt agriculture to the climate change. *„Priority is to preserve traditional, animal species adapted to the local environment that present the base for creating the new and improved properties of the existing domestic animals breeds“.* *„Support will be provided to beneficiaries who prevent erosion of plant and animal genetic resources and contribute to the improvement of their sustainable use, development and conservation aiming to achieve global food safety, sustainable agriculture and biodiversity conservation“* (RDP of Croatia 2014-2020). One of the breeds is local species of sheep and varieties of sheep *Dalmatinska pramenka*.

Table 19: Support table of sub-measure 19.1 Payment for agri-environment-climate

Type of operation	Actions	Total expenditure (€)	Total area (ha) by measure or type of operations
O_01: Tilling and sowing on the terrain with slope for arable annual plants	Soil cover, ploughing techniques, low tillage, Conservation agriculture	5.556.903,56	800,00
O_02: Grassing of permanent crops		20.757.462,57	500,00
O_13: Planting of winter cover crop (catch crop)		25.896.249,60	1.200,00
O_09: Maintaining extensive orchards		4.154.190,04	900,00
O_10: Maintaining extensive olive groves		16.469.475,24	700,00
O_14: Integrated farming		107.901.040,00	50.000,00
O_03: Terrace maintenance	Creation, upkeep of ecological features (e.g. field margins, buffer areas, flower strips, hedgerows, trees)	5.867.119,05	300,00
O_08: Establishment of field strips		4.046.289,00	1.100,00
O_11: Preservation of landscape features - stone walls		347.980,85	500,00
O_12: Preservation of landscape features - hedges		809.257,80	100,00
O_04: Wide crop rotation	Crop diversification, crop rotation	9.667.933,18	900,00
O_05: Preservation of high nature value grasslands	Maintenance of HNV arable and grassland systems (e.g. mowing techniques, hand labour, leaving of winter stubbles in arable areas), introduction of extensive grazing practices, conversion of arable land to grassland.	3.776.536,40	500,00
O_06: Pilot measure for the protection of corncrake (Crex crex)		658.196,34	300,00
O_07: Pilot measure for the protection of butterflies		809.257,80	250,00

Source: Rural Development Programme of Croatia (2014-2020)

B. Cooperation projects as opportunity to gather knowledge and experience

Because of dynamic changes in the global market, increasing competition and business changes, Croatian agriculture is facing with many difficulties. Agricultural holdings have unfavourable structure and there is small number of cooperatives which indicates a poor level of cooperation between agricultural producers. There is a need for cooperation in many levels. Cooperation between economic units and research institutions is also important which can result in better exchange of information, knowledge and goods. Cooperation measure should give support for entities to work together. There are three sub-measures within Measure 16: (16.1.) *Support for the establishment and operation of operational groups of the EIP for agricultural productivity and sustainability*; (16.2) *Support for pilot projects, and for the development of new products, practices, processes and technologies*; and (16.4) *Support for horizontal and vertical cooperation among supply chain actors for the establishment and development of short supply chains and local markets, and for promotion activities in a local context relating to the development of short supply chains and local markets*. “*The establishment and operation of Operational groups within the European Innovation Partnerships will reduce the gap between agricultural practices and research by promoting innovative solutions and*

introducing innovations in practice“. This measure should contribute to the increased competitiveness of primary producers by creating local markets and reducing the number of intermediaries between producers and consumers and by creating added value products (RDP of Croatia 2014-2020).

Sub-measure 16.1 includes eligible expenditures of costs for establishment of operational groups during the lifetime of the project, running costs for the operation of operational groups during the lifetime of the project and direct costs of implementing the project, including research activities linked to accompanying practical projects as applicable based on the detailed plan. It is important condition that at least two entities are involved in order to make their cooperation eligible and one of them needs to be a primary producer. In addition, the operational group must establish internal procedures to ensure transparency in their operation and decision-making, and avoid conflicts of interest and the project must have a direct link to one of the priorities in the Rural Development Programme. Intensity of the support amounts to 100% of eligible expenditures and the minimum value of public support per operation is € 10.000 while the maximum value is € 250.000 (RDP of Croatia 2014-2020).

Sub-measure 16.2 supports pilot projects with the purpose to collect new experiences and to demonstrate the benefits of their implementation, as well as any deficiencies and potential problems. The aim is to *“develop better relations between producers and processors, and raising the level of innovation in the agri-food and forestry sector and improve consumers’ perception about high quality of local products”*. Eligible beneficiaries are associations of producers, producer organizations, cooperatives in the agriculture, food and forestry sectors and Operational Groups (RDP of Croatia 2014-2020).

Sub-measure 16.4 should provide to agricultural producers opportunities for an easier placement of products to final consumers. It is necessary to enable sales at the local market, to deliver the final product to the consumer as soon as possible; this involves reducing the number of intermediaries. *“The shorter the supply chain is, the easier it is to keep and promote authenticity and origin of foodstuffs in relation to their cultural identity, traditional ways of production and origin of ingredients. The development of more intensive and direct communication between producers and consumers will create added value to a product and develop a long term tendency to purchase exactly that product”*. Along with other beneficiaries, LAGs can also use this sub-measure. Sub-measure supports running costs for cooperation and promotional activities with intensity to 100% of eligible costs. The minimum value of public support per operation is € 10.000 and the maximum value is € 50.000 (RDP of Croatia 2014-2020).

Some of the risks of this measure can be not adequate checks of beneficiaries’ payment requests and project results’ verification and dissemination, the beneficiary started operation’s activities before submitting an application, risk of unrealistic and unclear business plan based on unreliable data, real costs are difficult to verify and to demonstrate and risk of double funding (RDP of Croatia 2014-2020). Except Measure 16, there is opportunity for cooperation between LAGs which will be explained in next subsection.

C. LEADER/CLLD in Croatia 2014-2020

Based on the principle of a bottom-up approach, the LEADER program is an innovative approach to the implementation of local development strategies dedicated to rural areas. Story of LEADER in Croatia started in 2008 during IPARD programme when first initiatives came for establishing LAG (LAGs *Vallis Colapis*, *Gorski kotar* and *Laura*). First and second call for proposals for Measure 202 were in 2013 and during IPARD period LAGs could not implement local development strategies or apply for the projects. Functioning of LAGs in the full meaning of the word is expecting with EAFRD. Exactly 3% of the total EAFRD contribution to the Rural Development Programme is reserved for LEADER/CLLD, so finally € 60.78 million is planned total Union contribution, which is less than in other Member States. Department in charge for LEADER in Croatia is *Department for Local Initiatives and Rural Development* under Ministry of agriculture. Ministry is in charge of creation of a legal framework, making criteria for the selection of LAGs, regulation for the minimum content of a

LDS, education, promotion and informing the local population and local stakeholders, establishment of the Evaluation Committee for the selection of LDSs and monitoring and evaluation of implementation of the measure. Paying Agency for Agriculture, Fisheries and Rural Development is in charge of announcement of call for proposals, administrative processing of applications LAGs, selecting and controlling LAGs and projects and finally payment of funds to the selected LAGs (RDP of Croatia 2014-2020).

The implementation of the LEADER approach through Measure 19 (Support for LEADER local development (CLLD - community-led local development⁴⁷) in the Republic of Croatia in the period 2014-2020 will contribute to rural development with implementation of local development strategies. CLLD is a specific tool for use at sub-regional level, which is complementary to other development support at local level. The LEADER approach serves as the basis for the new Commission initiative CLLD so CLLD continues LEADER philosophy: area-based, bottom-up, public-private, integrated, innovative, cooperative and networking. The LEADER/CLLD approach directly contributes to Priority 6 *“Promoting social inclusion, poverty reduction and economic development in rural areas with focus area on fostering local development in rural areas”*. Beside Priority 6, LEADER/CLLD also contributes to the realisation of objectives related to climate change, environment and innovation. Most important step is including the local population in the drawing up and implementation of LDS in accordance with bottom-up principles. LDS must be in accordance to RDP 2014-2020 and County Development Strategy even county/regional level does not exist like in France. Role of the counties in previously period was organization of educations, workshops, gathering administrative units and paying salaries to employees of LAGs. In Croatia, local stakeholders and action through LAGs will strengthen local communities and improve living conditions, environment and quality of life of the rural population. LAGs need to improve the active participation of the rural population in the process of making decisions, and thus increase rural competitiveness and the overall growth of rural areas, thereby contributing to reverse the trend to rural depopulation. The LAG area in Croatia represents a clearly defined and geographically continuous rural area with more than 10.000 and less than 150.000 inhabitants, including settlements with a population of less than 25.000. One LAG needs to have minimum five local self-government units. At least 50% of the Managing Board must be from the private and civic sector. Executive or administrative bodies of local self-government must represent with a minimum of 20% and women at least 30%. Members of the Managing Board of the LAG must have a permanent residence and/or to be registered and/or have an office in LAG area. Manager of the LAG does not have to be a member or resident of a LAG, manager just must have higher education. The objectives from the implementation of LEADER approach in Croatia in the period 2014-2020, as result from the SWOT analysis, are:

- (1) *support rural development by means of local initiatives and partnerships;*
- (2) *improve and promote rural development policy;*
- (3) *raise awareness on the bottom up approach and the importance of defining a local development strategy;*
- (4) *increase education and information level of rural population;*
- (5) *improve rural living and working conditions, including welfare;*
- (6) *create new, sustainable income earning opportunities;*

⁴⁷

http://ec.europa.eu/regional_policy/sources/docgener/informat/2014/community_en.pdf

(7) *maintain and create new jobs;*

(8) *and diversification of economic activities* (RDP of Croatia 2014-2020).

Implementation of LEADER Measure will go through five operations and four sub-measures (Table 20). At the beginning of the 2015 should be first and the only call for proposal for sub-measure 19.1. After accreditations of LAGs were made, other sub-measures could start.

Table 20: Operations and sub-measures within Measure 19, 2014-2020

Operation	Sub-measure	Eligible costs and maximum support	Beneficiaries
1. Preparatory support	19.1 Preparatory support	<ul style="list-style-type: none"> • capacity building and trainings for employees, volunteers and LAG members (for the purpose of designing and implementing LDS) such as seminars, workshops and study visits; • networking such as meetings; • studies for the LAG area; • drawing up of LDS (including consultancy costs); • administrative costs (operating and personnel costs) for LAGs, which did not received support under IPARD. • Support is awarded as a grant • 100.000,00 € per LAG, about 6% of the total allocation for the measure LEADER 	LAGs registered in accordance with the Law on Associations.
2. Support for implementation of operations under the CLLD strategy	19.2 Support for implementation of operations under the community-led local development strategy	<ul style="list-style-type: none"> • LAGs will be able to select projects (according to LDS and RDP) for beneficiaries from the LAG area up to the level of allocated funds. • Eligible costs are defined under the specific type of operation, sub-measure or measure in the RDP • The maximum public support (allocations) per LAG amounts up to € 5 million • about 88% of the total allocation for the measure LEADER 	Project holders from the area of the LAG (who applied to LAG) and selected LAGs
3. Preparation of cooperation activities of the LAG and 4. Implementation of cooperation activities of the LAG	Preparation and implementation of cooperation activities of the local action groups	<ul style="list-style-type: none"> • Eligible costs must be directly linked to the technical preparation of inter-territorial and transnational (between several Member States or with third countries) cooperation projects, such as: travel and accommodation costs for partner search, costs of translation, interpretation and meeting organization, specific expertise related to the scope of the intended cooperation project. • Eligible expenditures are also costs for the implementation of inter-territorial and transnational cooperation projects • Support is awarded as a grant, 100.000,00 € per LAG, • about 6% of the total allocation for the measure LEADER 	Beneficiaries are selected LAGs under sub-measure 19.2.
5. Running costs and animation	19.4 Support for running costs and animation	<ul style="list-style-type: none"> • Costs related to personnel costs, office, equipment, public relations, monitoring and evaluation of LDS, exchange of experience, assistance for preparation of the project and similar activities. • up to 25% of the amount of allocated public expenses incurred within the LDS • Support is awarded as a grant 	Selected LAGs

Source: Rural Development Programme of the Republic of Croatia for the Period 2014-2020

“*Interlocality*” is one of the most significant dimensions of the LEADER approach. LEADER/CLLD have imperative to create linkages between LAGs from different countries, not only between LAGs

from same country. Cooperation was mainly rationalized as technical means to broadcast ideas of best practice for local rural development but it is going in other directions too. Connections between localities across Europe are in one hand start of a heterogeneous rural development Europe (Ray, 2000).

Next to the cooperation, networking also has large importance in LEADER/CLLD. Networking and partnership can improve conditions for the comprehensive development and quality of live in rural areas. *LEADER Network Croatia (LEADER mreže Hrvatske)* is one of three associations in Croatia which gather more Croatian LAGs and organizations and institutions connected with rural development such as the Faculty of Agriculture in Osijek, the Croatian Chamber of Commerce, the Institute of International Relations, etc. Main activities of *Network* are; (1) providing assistance to civil society organization and other stakeholders engaged in rural development through seminars, workshops, lectures, etc.; (2) encouraging cooperation and mutual assistance and connection of associations; (3) enforcing and coordinating rural development projects; (4) care about revitalization, promotion and promotion of traditional, cultural and natural heritage; (5) publishing of books, magazines and brochures; (6) organizing of symposiums, training and meetings; (7) organizing volunteer exchange and many others. Also, *LEADER Network Croatia* started to form *National Network for Rural Development of Croatia* in partnership with Ministry of Agriculture⁴⁸. Third network is *Croatian Network for Rural Development (Hrvatska mreža za ruralni razvoj)*, association founded in 2006 which is committed to the sustainable development of rural areas in Croatia. The principles of activities are based on European practices and LEADER approach⁴⁹.

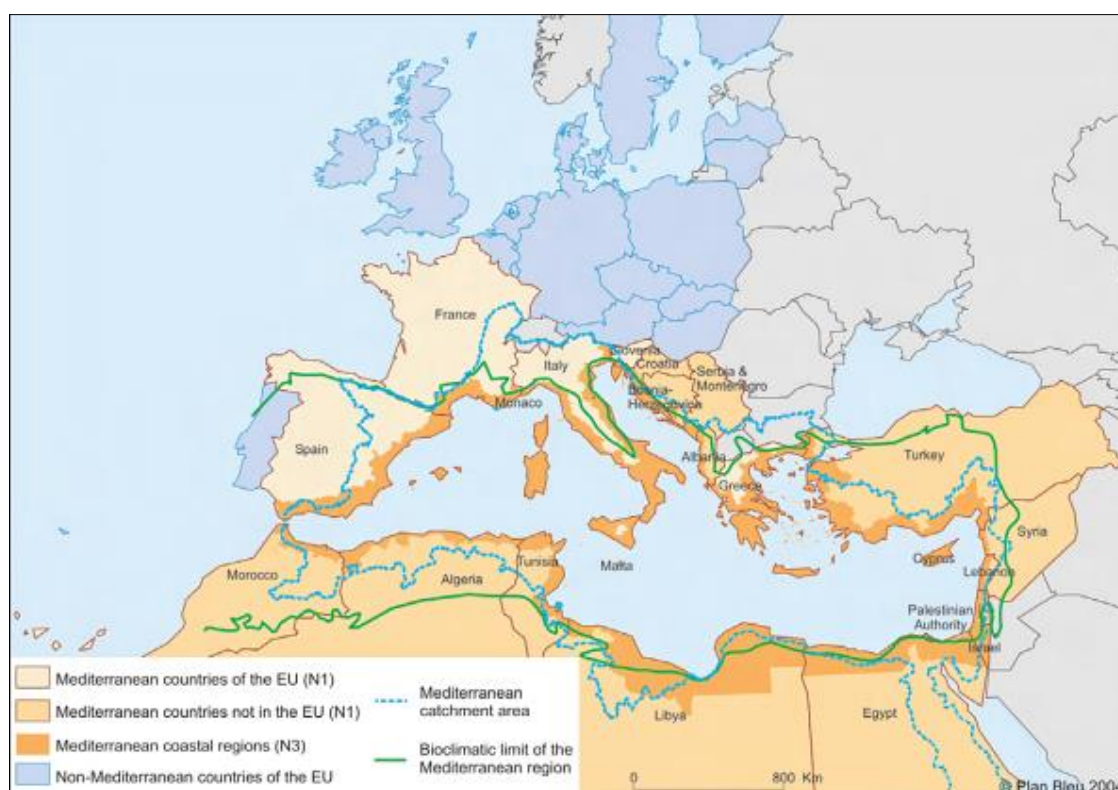
⁴⁸ http://www.elard.eu/elard/national-leader-networks/en_GB/leader-network-croatia

⁴⁹ <http://www.hmrr.hr/hr/o-nama/>

Chapter III. Croatian Mediterranean territories and agri-environment through LEADER approach

The Mediterranean area is region (Map 6) of large importance and it has several dimensions which define it such as climate, vegetation, biodiversity, culture, etc. Large territory in Croatia is in Mediterranean area, precisely in the group Northern Mediterranean Countries, sub-group Eastern Adriatic Countries with Slovenia, Bosnia-Herzegovina, Montenegro and Albania (Benoit, Comeau, 2005).

Map 6: Mediterranean countries and coastal regions



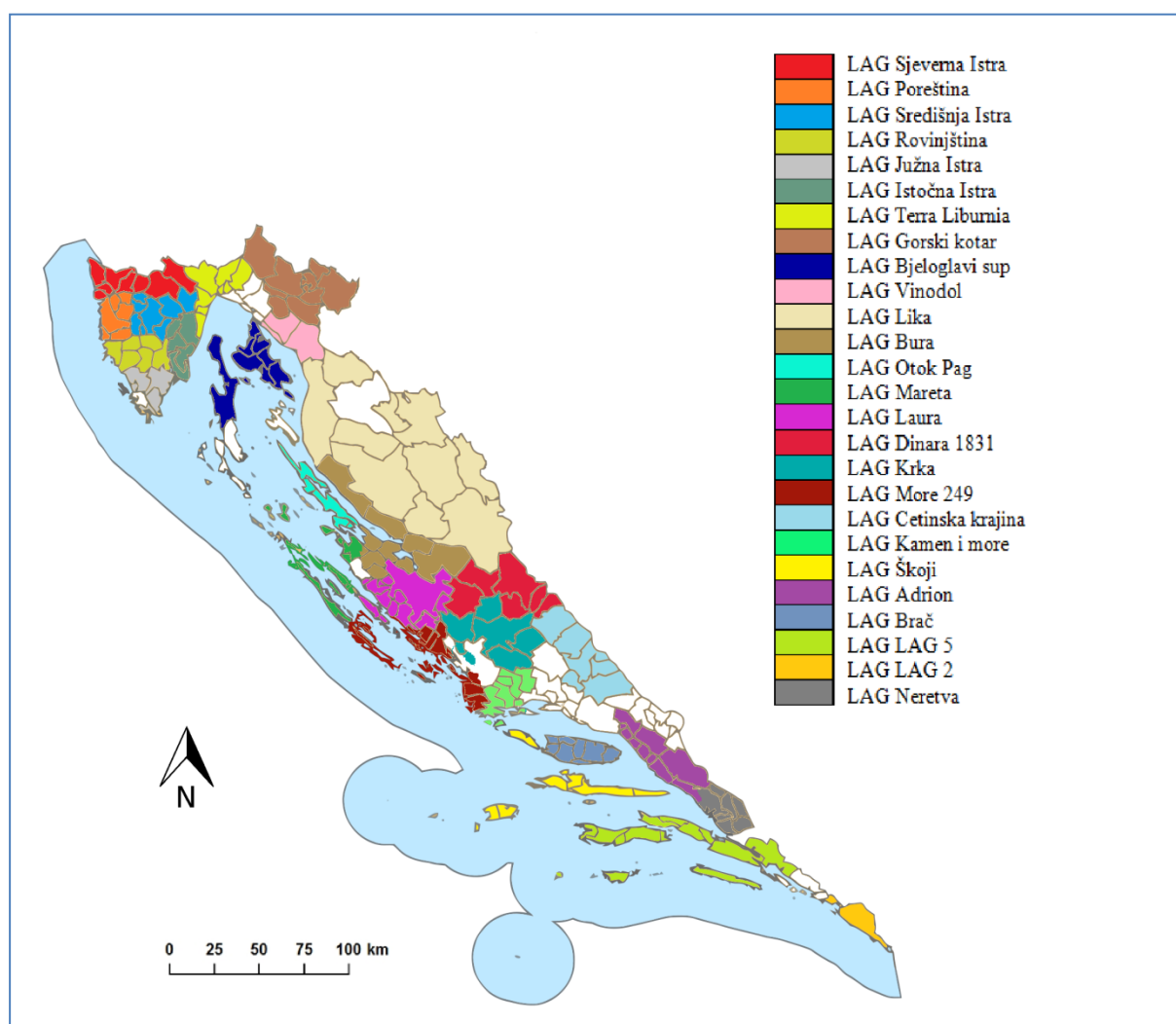
Source: Benoit, Comeau, 2005

I. LAGs in Adriatic Croatia, same strategy – diverse territory

In 2012, Croatian government and EC agreed on statistical divisions in Croatia where Adriatic Croatia and Continental Croatia became NUTS⁵⁰ 2 regions. Statistical divisions in Croatia except NUTS 2 include NUTS 1, Croatia and NUTS 3, 20 counties and City of Zagreb. Adriatic Croatia as a part of Mediterranean has about 1.5 million inhabitants and includes Mountain Croatia region. It spreads from Istria in the northwest to the Konavle in the southeast. Adriatic region presents very complex natural environmental region with islands, coastal area, hinterland and mountains. Total number of counties in Adriatic Croatia is seven (Map 7).

⁵⁰ „NUTS - Nomenclature of territorial units for statistics (NUTS 1: major socio-economic regions, NUTS 2: basic regions for the application of regional policies, NUTS 3: small regions for specific diagnoses)“
http://epp.eurostat.ec.europa.eu/portal/page/portal/nuts_nomenclature/introduction

Map 7: LAGs in Adriatic Croatia NUTS region 2, December 2014



Source: author, status December 2014

According to Registry of Associations in Croatia, currently there are 65 registered LAGs (status December 2014) and from that number 26 LAGs are from Adriatic Croatia⁵¹ NUTS 2 region. As been already told, first initiative for establishing LAGs in Croatia were in 2008, but in 2013 Paying Agency announced first and second call for proposal for Measure 202 within IPARD while Ministry of Agriculture gave quota for both calls. Finally, 30 LAGs were selected and accredited after first and 12 LAGs after second call for proposal. From total number of 42 LAGs, 16 LAGs were from Adriatic Croatia (Table 21). Other Adriatic LAGs were not accredited because of bad results, LDS had negative value or they have not been established yet. In 2015, there could be more changes in some LAGs because some LAGs do not satisfy all criteria such as minimal number of five administrative units (LAG 2 has two, LAG *Vinodol* three and LAGs *Otok Pag* and *Rovinjšina* have only four units). All LAGs started to prepare from beginning for period 2014-2020 for only one call for proposal for sub-measure 19.1 at the beginning 2015.

⁵¹ 26 LAGs are with whole area in Adriatic Croatia, LAG Frankopan is in Adriatic Croatia with only one local self-government unit

Table 21: LAGs in Adriatic Croatia

Accredited after 1 st call for proposals under IPARD (alphabetic)		Accredited after 2 nd call for proposals under IPARD		Other LAGs	
1.	LAG 5	11.	LAG Dinara 1831	17.	LAG 2
2.	LAG Adrion	12.	LAG Gorski kotar	18.	LAG Bjeloglavi sup
3.	LAG <i>Bura</i>	13.	LAG Južna Istra	19.	LAG <i>Brač</i>
4.	LAG Cetinska krajina	14.	LAG <i>Lika</i>	20.	LAG Kamen i more
5.	LAG Istočna Istra	15.	LAG Mareta	21.	LAG More 249
6.	LAG <i>Krka</i>	16.	LAG Neretva	22.	LAG Otok Pag
7.	LAG Laura			23.	LAG Poreština
8.	LAG Središnja Istra			24.	LAG Rovinjština
9.	LAG Škoji			25.	LAG Sjeverna Istra
10.	LAG Vinodol			26.	LAG Terra Liburnia

Source: www.apprrr.hr

1. Analysis of Local Development Strategies

Under IPARD 2007-2013, in each local development strategy was included: overall objectives of the Croatian IPARD Programme 2007-2013, SWOT analysis (for economic, social and environmental characteristics), quantitative objectives, a description of the expected activities/measures, a financial table and a timetable for the implementation of the activities. If it was necessary, also special technical sheets (description of the project, detailed action plan, list of partners, timetable for implementation and financial tables per year, allocation per partner and per action) on the cooperation projects (IPARD 2007-2013). In this work, it would be analyzed descriptions of the expected activities/measures. Special focus is on agri-environmental measures and activities. Within IPARD, one of the three priority axis was *Preparatory actions for implementation of the agri-environmental measures and local rural development strategies*, which shows connection between agri-environmental measures and LAGs.

Several interviews with members of LAGs indicated that LDS for IPARD Programme were mostly developed without participation of local people. Analysis of LDS of accredited LAGs shows several similar visions, objectives, priorities and measures of LAGs, which can confirm that approach to creating LDS was not local based. Analysis of local development strategies included available strategies of 14 accredited LAGs (within IPARD) in Adriatic Croatia. According to SWOT analysis and needs, LAGs have been chosen their strategic objectives. All priorities of LAGs can be summarized in seven strategic objectives. In average each LDS have five objectives with priorities and measures. All 14 LAGs have chosen objective of economic activities diversification and development of tourism and/or entrepreneurship. Eleven LAGs have been seen their development in sustainable and competitiveness agriculture. It is interesting that only one LAG, *Bura* near Zadar, had objective of cooperation with other LAGs. Only half of analyzed LAGs had development of human resources in the purpose of strengthening attractiveness and competitiveness (Table 22).

Table 22: Objectives and priorities chosen by 14 accredited LAGs in Adriatic Croatia

Strategic objectives	Priorities and measures (some chosen)	LAGs
1. Preparing LAG's areas for the implementation of the LEADER programme, to provide information and knowledge to inhabitants of LAG and strengthening identity of the LAG	<ul style="list-style-type: none"> ● Informing and education of members and residents of the LAG, training of administrative units, volunteers and members, ● Supporting activities of rehabilitation and sustainable use of heritage, to create new touristic products, the use of renewable energy sources, ● Promotion of LDS and LAG 	(9) <i>Bura, Dinara 1831, LAG 5, Laura, Neretva, Škoji, Cetinska krajina, Sjeverna Istra, Terra Liburnia</i>
2. Enhancing and improving of the living conditions in LAG's area including natural, communal and social infrastructure and their maintenance, also as balanced development	<ul style="list-style-type: none"> ● Development of integrated waste management system, sewerage and wastewater treatment systems, and development of water supply, small utilities infrastructure, ● Improvement of transport connections, ● Arrangement of multipurpose objects, rural units and centers of rural communities, ● Strengthening of social activities, care for socially vulnerable groups 	(12) <i>Adrion, Bura, Dinara 1831, Istočna Istra, LAG 5, Laura, Škoji, Cetinska krajina, Neretva, Rovinjštine, Središnja Istra, Terra Liburnia</i>
3. Increasing level of social and environmental awareness, knowledge, sports and healthy living.	<ul style="list-style-type: none"> ● Supporting the development of sports infrastructure, ● Civil society development, ● Protection and preservation of the environment and biodiversity, ● Improvement of the energy system, ● Using renewable energy sources 	(11) <i>Adrion, Istočna Istra, LAG 5, Laura, Lika, Škoji, Cetinska krajina, Rovinjštine, Sjeverna Istra, Središnja Istra, Terra Liburnia</i>
4. Development of rural economic activities that encourage diversification of economy (emphasis on entrepreneurship and tourism)	<ul style="list-style-type: none"> ● The development of selective forms of tourism, ● Support for smaller projects and production, ● Preservation of traditional crafts and develop of new, ● Strengthening the entrepreneurial infrastructure, ● Encouraging the development and functioning of cooperatives and associations 	(14) <i>Adrion, Bura, Dinara 1831, Lika, Škoji, Cetinska krajina, Središnja Istra, Istočna Istra, LAG 5, Neretva, Rovinjštine, Sjeverna Istra, Terra Liburnia</i>
5. Improvement of business conditions and coordinate in the direction of sustainable development and competitiveness of agriculture	<ul style="list-style-type: none"> ● Support for association in agriculture, ● Development of conventional agriculture and of organic farming, ● Development of competitive production and building common space for processing and finalization of products 	(11) <i>Adrion, Istočna Istra, LAG 5, Laura, Lika, Škoji, Cetinska krajina, Neretva, Sjeverna Istra, Središnja Istra, Terra Liburnia</i>
6. Establishing an effective system for sustainable development and valorization of human resources in the purpose of strengthening attractiveness and competitiveness	<ul style="list-style-type: none"> ● Employment and capacity building ● Supporting the development of complementary activities in each activity ● Encouraging micro-enterprises in rural areas and the development of social entrepreneurship 	(7) <i>Dinara 1831, Istočna Istra, LAG 5, Neretva, Rovinjštine, Središnja Istra, Terra Liburnia</i>
7. Cooperation with other LAGs	<ul style="list-style-type: none"> ● Activities for cooperation projects, education and trainings of LAG's member 	(1) <i>Bura</i>

Source: Analyses of LDS (within IPARD period) of 14 LAGs

Agri-environmental measures and agricultural biodiversity protection are not recognized as possible actions and projects in LAGs. This could be reason of lack of knowledge and information about those possibilities. The conclusion according to this statement is that in Croatia term agri-environmental is still dividing on agricultural activities and environmental protection. LDS have been supported sustainable development and competitiveness of agriculture with organic farming, traditional production and support for associations.

In solving environmental issues, LDS stated that quality monitoring is fundamental component of the environment preservation, enhancement and sustainable use. Because there is no systematic monitoring of soil, water and air, no integrated waste management it is necessarily to have quality monitoring system, education and a higher level of awareness of the importance of preserving environment. Only few LAGs such as *Škoji*, *Terra Liburnia* and *Istočna Istra* have priority to protect biodiversity and landscape diversity. This priority is focused on the protection, preservation and revitalization of valuable habitats of rare and endangered plants and animal species (Natura 2000), thus contributing to the sustainable management of natural resources and the sustainable management of cultural heritage and natural resources. Principles of sustainable development and environmental protection are horizontal objectives of LDS and they have to be implemented in every project of local development strategies. It is therefore evident conclusion that these objectives have extremely positive impact on the preservation of the environment and natural resources in the whole area of the LAG (LDS of LAG *Škoji*, 2013).

A. Adriatic LAGs characterized by pastoral activities

Croatian islands, coast and hinterland have a long tradition of sheep breeding and production of meat, milk, cheese and wool, whose economic importance throughout history has often changed. Sheep are dominant species in livestock breeding in the Mediterranean because of their exceptional adaptability and endurance. Due to unapproachable, rocky and karst terrain, poor vegetation, sheep and goats are the most numerous of all domestic breeds in Croatian Adriatic (Garibović *et al.*, 2007). Sheep in Adriatic Croatia are related to tradition and habits of the local population and also an important part of socio-economic heritage of the region (Morand-Fehr *et al.*, 1983 in Garibović *et al.*, 2007). During history, today mostly abandoned pastures on the Dinarides were place for summer cattle breeding, because of poor coastal surrounding pastures. This way of breeding was not a specialty just in this region, but whole Mediterranean until the second half of last century. Position of Dinaric Mountains is at the crossroads of the Mediterranean and continental Europe had influence on the development of seasonal migrations (transhumance) flock of sheep. Mountain pastures on the coastal side of the Dinaric Mountains were at an altitude above 1.000 m and they were spatially dispersed. Better quality mountain pastures are located in the high zone above 1.400 m (Marković, 2003). Today those pastoral areas are mostly abandoned and they are in LAGs *Centinska krajina*, *Dinara 1831*, *Bura*, *Istočna Istra* and *Lika*.

The sheep and goats in the Mediterranean area are held in fenced or unfenced areas where they are grazing wild plants. In the Mediterranean area, the natural grazing of sheep is an integral part of the overall system of production, regardless of the level of intensification. This grazing should ensure optimal and efficient use of pasture and maintaining a balance in the ecosystem, and thus prevent the spread of shrubs and erosion (Garibović *et al.*, 2007)

When it comes to pastoral activities on the islands, conditions are slightly different. Grazing on the pastures occur during entire year but still on the poor pastures. On all islands during history, pastoralism was primarily or additional activity. Most famous islands where pastoral activities were strong and still existing but with less intensity are islands of Pag, Cres, Kornati and Brač. Today, those islands are part of LAGs *Otok Pag*, *Bjeloglavi sup* and *More 249*. Sheep breeding on the island of Pag with the production of salt for centuries has been basic economic activity of the island population. Island of Pag is the most typical representative area where sheep breeding have an important economic, social, demographic, cultural, traditional and ecological role (Gugić *et al.*, 2012). For the island of Cres is significant sheep grazing under olive trees. The tendency of the aging population and

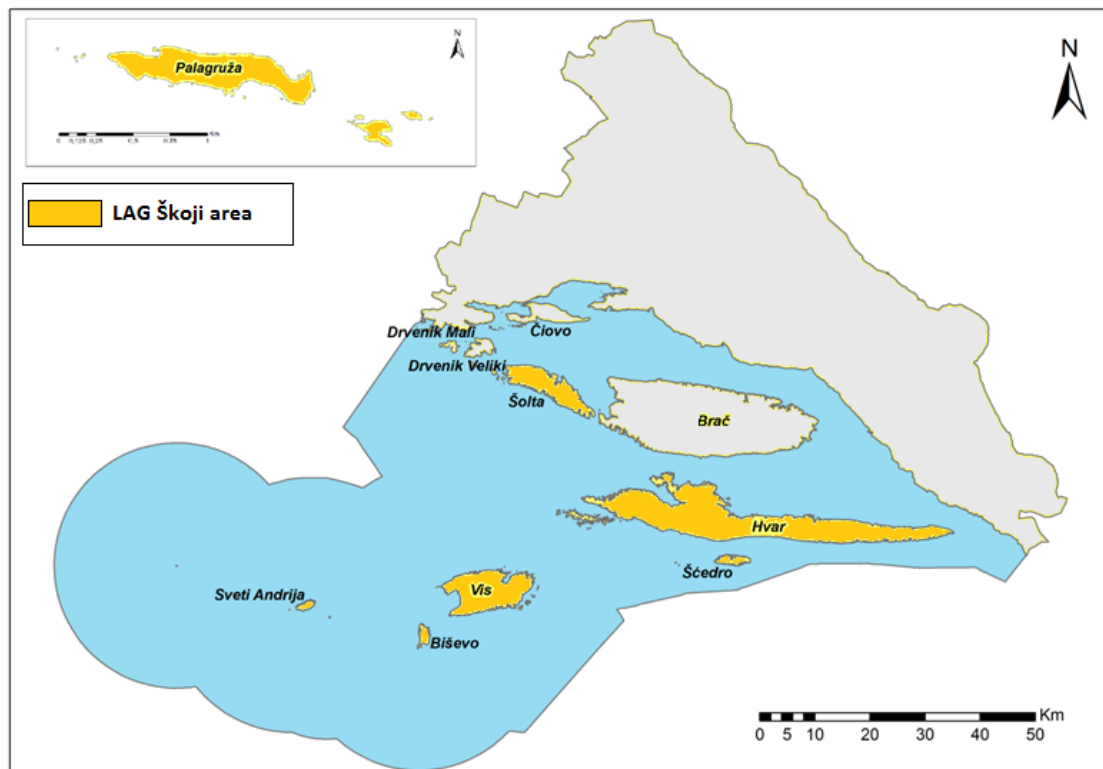
drastic changes started from 1960s because of emigration to the cities and depopulation of rural settlements. With the development of other economic sectors, especially tourism, pastoralism became more abandon. Today, several families on the island still produce meat, milk and cheese. Breeding is today recognized as very important activity and because of that on the island of Cres there is *Museum of sheep breeding* (Jurkota Rebrović, 2009).

II. Need to start from the field – example of LAG Škoji

Croatian islands by their position belong to eastern Adriatic islands. In the Croatian territorial Adriatic Sea has 1246 islands, islets, reefs and cliffs (79 islands, 525 islets, 642 rocks and reefs) (Duplančić Leder, *et al.*, 2004.). Croatian islands are commonly divided into Kvarner, North, Central and South Dalmatian islands. All Central Dalmatian islands administratively belong to Split-Dalmatia County (and Palagruža as south Dalmatian island). Surface of Split-Dalmatia County is 14.106.40 km². The largest area of County occupies hinterland (59.88%), followed by the coastal area (21.12%), and finally islands occupy 19% of the total area of the County (Duplančić Leder, *et al.*, 2004.).

Five largest islands by area and population are Brač, Hvar, Šolta, Vis and Čiovo. Three of them, Hvar, Šolta and Vis are part of LAG Škoji. In LAG Škoji, there is only one more populated island, Biševo. LAG Škoji has seven self-governments units. Total surface of completely insular LAG is 474.63 km² (ARKOD), which is 3.36% of total surface of County. LAG is located in west and south-west of Split-Dalmatia County, on the geostrategic important area. Hvar is 14 km SE from the Šolta, 3.4 km S from Brač and 27.6 km NE from the island of Vis. Only 4 km on the east of the Hvar is mainland. There are 53 km between Vis and Split and 5 km between Vis and island of Biševo (Map 8). That distance and insularity present the largest problems for traffic connection. Islands are mostly good connected with Split, especially during summer, but there are no connections on daily base between islands of LAG Škoji.

Map 8: LAG Škoji area within Split-Dalmatia County



Source: author, 2014

LAG *Škoji* was established in 2011 as LAG *Hvar* and the aim was to prepare self government units of island of Hvar for implementation of LEADER approach. The island of Vis with two self-government units became part of LAG in 2012 and the island of Šolta in 2014. Local development strategy was drafted and adopted in 2013. LDS was co-financed by Split-Dalmatia County, UNDP Programme Coast and LAG as himself (LRS LAG *Škoji* 2012-2014, 2013). In 2013 LAG was accredited as one of the 42 accredited LAGs in Croatia.

1. Physical characteristic

Largest island of LAG *Škoji* and fourth largest in Adriatic Sea is the island of Hvar with 299.66 km². Islands of Vis and Šolta are ninth and thirteenth⁵² by his surface in Croatia with 90.26 km² and 58.98 km². Other larger islands are Biševo (5.92 km²) and Svetac (4.19 km²) within Vis archipelago, island of Šćedro (8.37 km²) and several islands within group of Pakleni otoci next to the southern coast of the island of Hvar and next to the northern coast of Hvar there are islands of Zečevo and Duga. Smaller islands as part of cities of the Komiža and Vis are Jabuka, Brusnik, Palagruža, Ravnik, Budikovac, Galiola (Duplančić Leder, *et al.*, 2004.).

A. Geological and geomorphologic characteristics

The Adriatic coast was created by transgression of sea level to almost 100 m. With transgression, synclines (depressions) became marine channels, and the anticlines (elevations) islands. It resulted with shape of the coastline in, which islands are parallel to the coast, in scientific terminology that is called type of Dalmatian coast. Between central Dalmatian islands there is division into two groups of islands according to their predominant direction. Most of the islands are deviating from *Dinaric direction* (the predominant northwest-southeast direction), except Šolta and Čiovo, and have east-west direction referred as *Hvar direction* of the islands (Brač, Hvar, Vis, Šćedro) (Cvitanović, 1974.). In geological structure of the islands there are parts of Lower Cretaceous dolomite with limestone and Upper Cretaceous limestone with dolomite and Eocene limestone and marlstone, but lesser. Quaternary sediments are represented by delluvial, fluvial and eolian clastics. Various forms of relief are caused by tectonic activity and geomorphologic processes. The crucial role in the formation of the relief had geological processes i.e. youngest tectonic movements (Bognar, 1990). Volcanic origins have small islands of Jabuka and Brusnik and part of bay of the Komiža. The Adriatic volcanoes were active mainly in the Mesozoic, before the alpine orogeny (Cvitanović, 1974.).

The weathering of the rocks as exogenous destructive (karst, fluvial-derasion, abrasion), and accumulation processes have been shaped islands present appearance. On fluviokarst shaping during the Pleistocene indicate forms of dry valleys and *uvalas* placed in the inland of Islands. Due to climate change, warmer and more humid conditions in the Holocene, there was a slowdown of fluviokarst and intensification of karst processes. During the Pleistocene, derasion processes were intensive by denudation material from the slopes and accumulation in morphological depressions in the inland and next to the coast material transformed into beach's sediments. Derasion destructive processes (washing, dispersal, collapse and gullyng) also today play an important role in the shaping of relief because they provide a continuous material in some relief forms (*karst poljes*, *uvalas*, valleys) (Krklec *et. al*, 2012). If we observe the geomorphology of the area, it is important to emphasize that geomorphologic section of the island Šolta shows significant tectonic shaping with prominent limestone ridges and plains, dolomite depressions and also flysch. On the island Hvar there are similar features, but it appears more flysch zones within the island, and the rest of the island is covered with limestone and dolomite around Stari Grad. On the island of Vis, along with limestone and dolomite, there is and the appearance of prominent older flysch sediments in the coastal zone (Magaš, 1998).

⁵² http://www.dzs.hr/Hrv_Eng/ljetopis/2013/sljh2013.pdf

South coast of the islands are steeper than the northern coast and have less ports and bays. The coastline is indented, and some bays go deeply into the land of the island, such as the bay of Stari Grad and Vrbovska on the island of Hvar, Komiža and Vis on the island of Vis and Nečujam on the island of Šolta. The coastline of the islands of Hvar, Vis, and Šolta have a total length of 403.9 km, while their indentedness coefficients is 4.14 (Hvar), 2.28 (Vis) and 2.69 (Šolta)⁵³ and represent one of the most indented islands in the Adriatic.

Šolta is in the group of the medium large Dalmatian islands. It is 19 km long, 4.9 km wide, and it stretches from the NW to the SE. The island has two faults; one is the direction of Nečujam-Maslinica and parallel to the southern coast of the island, and the other direction of Nečujam-Senjska and is transverse to the first fault. West of the transverse fault has the direction of east-west and east part has northwest-southeast direction. The western part of the island in the cross section is saddle-shaped and the eastern part is actually plateau that gradually slopes towards the island of Brač. In the eastern part of the island the highest peak is 236 m (*Vela straža*) and in the western part it is 208 m⁵⁴.

The island of Vis also belongs to the group of the middle Dalmatian islands. Its maximum length is 17 km and maximum width is 8 km. Faults on island are mainly sub-parallel to the longer axis of the island. Smaller faults are of local importance because they dissected the entire island and pre-disposed numerous karst formations such as *karst poljes*, *uvalas*, dry valleys, plateaus, slopes and etc. Island of Vis has three hill chains and two depressions, which contains several smaller *karst poljes*. Western part of the island is higher than eastern part. Higher hills are formed in the limestone while areas of faults are often in dolomites. Highest peak of the island is Hum with 587 m and it is second highest in LAG Škoji. Karst poljes are most significant for agricultural activities on islands; on the island of Vis the largest are Dračevo, Plisko and Zlopolje and they are closed type, surrounded by hills (Krklec *et al.*, 2012).

The highest peak of the LAG Škoji is *Sveti Nikola* (628 m) on the island of Hvar and it is third highest in Adriatic Sea. Western part of the island of Hvar have the highest level, while the extension of the highest ridge goes from west to east where it goes down to the coast (Bognar, 1990). The lowest part of the island (less than 100 m) is at its north extension, from Stari Grad to Jelsa. *Karst poljes* are near settlements of Stari Grad, Vrbovska and Jelsa and plateau and dry valleys occur in the central part of island near Pitve, Vrisnik, Svirče and Dol. Shallow sinkholes that form a typical karst formation are also occur in that area (LRS LAG Škoji, 2013).

B. Pedological characteristics

Lithology and rock structure, noticeable relief, particularities of hydrologic circumstances and climate-vegetation characteristics as well as human activity, characterized development and features of the soils on the islands. Zones of the fertile soils, although relatively small, were always important for development on islands. These zones are limited to morphological depressions (*karst poljes*) where agricultural production started from ancient time. Settlements are mostly located at the edges of *karst poljes* to have more zones for agriculture. Geomorphologic processes of erosion and dispersion have been ensured continuous deposition of material in the *karst poljes*. Three soil types are developed on carbonates occur in *karst poljes*: lithosol (brown soil), terra rossa (red soil) and anthropogenic soil as most common type (Lozić *et al.*, 2012).

Brown soils and red soils are most prevalent and, if they are deep enough, they can be a valuable economic ground. Anthropomorphic soils are formed mostly as terrace, in the late of 19th century, during the conjuncture of viticulture and abundance of labour. However, large areas of these soils are

⁵³ http://www.dzs.hr/Hrv_Eng/ljetopis/2013/sljh2013.pdf

⁵⁴ http://puo.mzoip.hr/UserDocsImages/Zahtjev_03_10_2012_1.pdf

abandoned and today they are covered with wild vegetation. Special types of soils are on the slopes of breccias, located primarily in the southern coastal slopes, which are one of the best areas for vine grape growing (south coast of Hvar) (Defilippis, 2002).

C. Hydrological characteristics

In hydrogeological terms on islands there can be distinguished permeable rocks, partially impermeable rocks, partially permeable rocks and poorly permeable to impermeable. As a special group, there are clastic sediments with changeable hydrogeological features of the Quaternary period, which can be found in karst field and smaller local depression. Permeable rocks are well karstified and fractured rudist limestone. With infiltration of precipitation, there is no possibility of water retention on the surface of for the formation of a comprehensive underground water level. Partially impermeable rocks may have a certain function of collecting water. Partially permeable rocks presented dolomitic limestone deposits. Since the lithological composition prevailing dolomite component in this area can be expected weak local infiltration of precipitation. At the same time the scalp of the anticlinal functions as a relative underground barrier, this effectively prevents underground communication between parts of the structure. Poorly permeable to impermeable rocks are represented in layered limestone and they have a significant contribution to the function of the underground barrier anticlines⁵⁵.

The islands soils are deeply karstified and precipitation waters goes through a network of underground channels and sink deep below the surface. Waters are lost in the sea or come near the coast as the source (in Croatian *vrulja*). On the islands of LAG *Škoji* there are no surface streams. Land management policy also includes the issue of water for agriculture since the water and land are the main precondition for growing certain crops and condition of intensification of production. Without water there is no intensive production, especially of citrus. Hvar and Vis have underground water sources, but that amount is not enough for all needs of the island. Island of Vis has water supply from the underground water (*Koritna* with average of 36 l/s and *Pizdica*) and the needs for water are higher during summer. On islands of Hvar and Šolta the water supply is from the mainland. Collecting rainwater, sometimes the only way of ensuring the water, is now largely abandoned. Constructions of reservoirs and desalination plants are not in plan yet (Defilippis, 2003).

2. Historical development

LAG *Škoji* is continuously populated area. The first sure signs of human existence on the islands are from the fifth millennium BC in Neolithic. In Neolithic human accepts a sedentary lifestyle with significant change of environment in, which he lives (Lajić, 1991). Most Neolithic sites are located on the island of Hvar (*Markova* and *Grapčeva špilja*). The first known people who have inhabited eastern Adriatic coast in Croatia were Croatian Illyrians (lat. *Delmatae*). Central and at that time the most densely populated Greek colony of the Adriatic were the island of Hvar, with two large settlements *Pharos* (Stari Grad) and *Dimos* (Hvar) and island of Vis and settlement *Issa* (Vis). Unlike the Greek colonists, *Delmatae* have been inhabited parts of the island far away from the sea near areas suitable for development of agriculture, especially breeding, and in those areas, they were more protected from attacks from the sea (Lajić, 1991). The Romans took advantage from the weakening of the Greek colonies on the islands and they began the Romanization of the Greek polis, which has left visible marks on the culture. All the islands were located within the Roman province of Dalmatia. After that period, islands were in the interest of Byzantine and Frankish Empire. After the Treaty of Aachen (AD 812), the Franks had rule over the islands. In next periods, control over the islands is changing by Byzantium (late 12th century) and Venice (late 13th century). Even Bosnian kings had short rule over the Hvar, Vis and Brač. All that time Croatia and Dalmatia had relations with Hungarian Kingdom. At

⁵⁵ http://puo.mzoip.hr/UserDocsImages/Zahtjev_03_10_2012_1.pdf

the beginning of the 15th Venice began its political and economic domination over Dalmatian islands, which lasted until the fall of Venice in 1797 (Lučić *et al.*, 1998). Venice lifted socio-economic organization of the islands on the higher level. After a long Venetian rule, Dalmatia and its islands came under the short rule of Austria and then under French Empire (1805-1814), which brings investments (high schools, transportation infrastructure, sea fishing acts) and increasing of quality of life. During French control islands were in the area of interest of major world powers so island of Vis was under British (Lajić, 1991). With the defeat of French Empire, the islands as part of Napoleon's Illyrian Provinces came again under Austrian rule as part of the *Kingdom of Dalmatia*. In that Austrian Empire, the islands were on the peripheral part and like that, they haven't been in socio-economically good situation (Lučić *et al.*, 1998). In the second half of the 19th century, economic growth came as result of production and sale of wine, whose demand increased after the collapse of Italian and French production. In this time of economic growth, the quality of life was improved and population number reached its peak. Due to rapid population growth, it came to agrarian overpopulation, which resulted with emigration from the islands to overseas countries and mainland.

After the end of the World War I and the collapse of the Austro-Hungarian Empire, the islands were under the rule of *Kingdom of Serbs, Croats and Slovenes*, and later the *Kingdom of Yugoslavia* (1929). Since 1939 islands were within the *Croatian Banovina* (except Palagruža, it belonged to the Kingdom of Italy) (Lučić *et al.*, 1998). During the World War II islands were territorially divided; the islands of Šolta, Vis, Biševo, Palagruža and Svetac were under the Italian annexation until September 1943, and the islands of Hvar and Šćedro were part of the Independent Croatian State. After the capitulation of Italy, the other islands also became part of that State until 1945 and defeat of the Axis powers. From 1945 until 1990 islands were part of Croatia within Yugoslavia. In Croatian War of Independence (1991-1995) the islands were not affected by aggressor, like other parts of the Croatia (Lučić *et al.*, 1998). The modern administrative division of the Croatia with 20 counties and City of Zagreb was adopted in 1992 and islands became part of the Split-Dalmatia County.

The favourable geostrategic position of islands of Vis was presented in its military role during history, especially during British and Austrian rule over during 19th century and within Yugoslavia. The period from the WWII until 1992 (when Yugoslav army left the island) has left consequences on the development of the island. Namely, Vis was due to its strategic location closed to foreigners (this regulation was until 1989) and island had turned into a large military fort. There were over 30 military facilities with underground hospital and tunnels⁵⁶. The consequences of this isolation were economic limited development, inability to tourism development and emigration of inhabitants. On the islands, there are still remains of that period (fences, tunnels and some facilities) and there are intents to develop tourism in that direction.

3. Main demographic characteristics

LAG *Škoji* has seven self-governments units. Administrative cities are Hvar, Stari Grad, Komiža and Vis and municipalities are Šolta, Jelsa, Sućuraj. Number of inhabited settlements (2011) was 50 and 5 settlements were not inhabited.

A. Number and distribution of settlements of LAG Škoji

In seven self-government units there are 55 settlements. Island of Hvar has more than half (28), archipelago of Vis (Vis, Biševo, Palagruža, Sveti Andrija) has 19 and Šolta has 8 settlements. If you compare the settlements on the coast and the settlements in the inland in LAG *Škoji* area by population (Census 2011) there can be noticed that a larger number of villages in the inland has less than 500

⁵⁶ Urlić A., 2011, *Vojnogeografska i strateška obilježja otoka Visa (II. dio)*, Hrvatski vojnik – Internet izdanje, 341 <http://www.hrvatski-vojn timer.hr/hrvatski-vojn timer/3412011/vis2.asp>

inhabitants, while the larger number of settlements on the coast are with more than 500 inhabitants. Also, there is no settlement in the inland with more than 500 inhabitants (Table 23). Settlements on the coast of the islands are Gromin Dolac, Hvar, Ivan Dolac, Jagodna, Jelsa, Milna, Stari Grad, Sućuraj, Sveta Nedjelja, Vrboska, Zračice and Zavalina on the island of Hvar; Maslinica, Nečujam, Stomorska i Rogač on the island of Šolta and Komiza, Milna, Rogačić, Rukavac and Vis on the island of Vis. Islands with one settlement are also in this category (Biševo, Svetac and Palagruža). Settlements in the inland of the islands are Bogomolje, Brusje, Dol, Gdinj, Humac, Malo Grablje, Pitve, Poljica, Rudina, Selca kod Bogomolja, Selca kod Starog Grada, Svirče, Velo Grablje, Vrbanj, Vrisnik, Zastrazišće on the island of Hvar; Donje Selo, Gornje Selo, Grohote i Srednje Selo on the island of Šolta and Borovik, Dračevo Polje, Duboka, Marinje Zemlje, Oključna, Plisko Polje, Podhumlje, Podselje, Podspilje, Podstražje and Žena Glava on the island of Vis. Five settlements are not populated anymore; Humac and Malo Grablje on Hvar, Sveti Andrija and Palagruža settlements on the same called islands and Oključna on the island of Vis (Census 2011).

Table 23: Distribution and the number of settlements of LAG Škoji by population in 2011

Population	Settlements on the coast	Settlements in the inland	Total
0 - 50	9	15	24
51 - 100	1	5	6
101 - 500	8	11	19
501 - 1000	1	0	1
1001 - 2000	4	0	4
2000 and more	1	0	1
Total	24	31	55

Source: Census 2011, www.dzs.hr

B. Population density

Most populated unit is Hvar (4.251) and least populated is Sućuraj with not even 500 inhabitants. Also Sućuraj has less population density with only 10 inh./km² (Table 24). LAG Škoji has total population of 16.237 on 474.63 with gives population density of 34.21 inh./km² (more than half less than population density of Croatia).

Table 24: Surface and population density 2011, LAG Škoji

Administrative unit	Surface (km ²)	Population 2011	Density (inh./km ²)
Hvar	75.77	4251	56.10
Jelsa	139.95	3582	25.59
Komiza	49.27	1526	30.97
Stari Grad	53.02	2781	52.45
Sućuraj	45.15	463	10.25
Šolta	59.38	1700	28.63
Vis	52.09	1934	37.13
LAG Škoji	474.63	16237	34.21

Source: Census 2011, www.dzs.hr, ARKOD

C. Population trends and population change

On the last inter-census period (2001-2011), LAG *Škoji* slightly increased population (0.1%) but still lower increase than all Croatian islands (bridged islands are the main reason for increase). It is very important to take a look on each island in LAG *Škoji* because there are large differences between them. Šolta increased almost 15% of population, and Vis has decreased by 4.8% of population (Table 25). Island of Svetac lost last inhabitant and Biševo is on the same way mostly because of their isolation. Reasons of increase on Šolta can be explained by its location near Split and with administrative immigrations (Lajić, Mišetić, 2013) where people are registered on islands just to have advantages of that while actually they are not permanent resident on islands.

Table 25: Population trends in LAG *Škoji*, 2001-2011

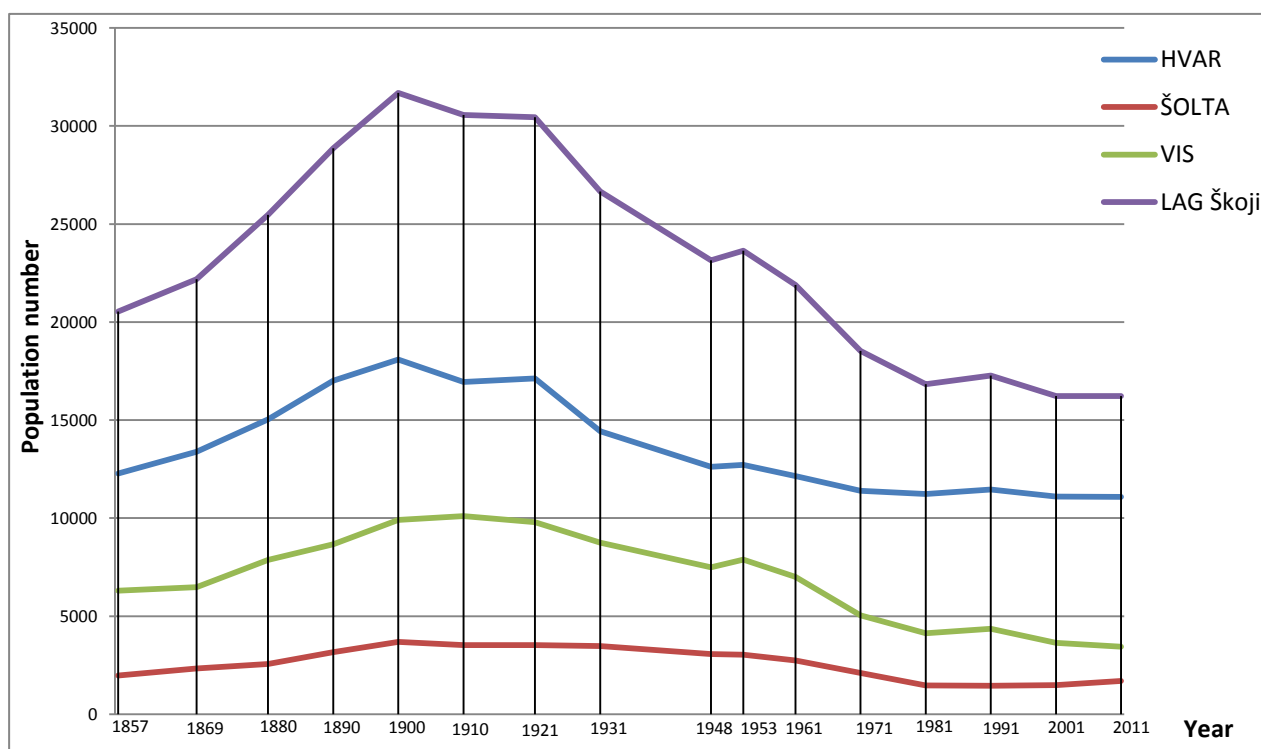
Islands in LAGs	Population		Absolute difference (2011 – 2001)	Relative difference (2001-2011) (%)	Index of Census change
	2001	2011			
Šolta	1479	1700	221	14.9	114,9
Hvar	11103	11077	-26	-0.2	99,8
Vis	3617	3445	-172	-4.8	95,2
Biševo	19	15	-4	-21.1	78,9
Svetac	1	0	-1	0	0,0
LAG <i>Škoji</i>	16219	16237	18	0.1	100,1
Croatian islands	122418	124955	2537	2.1	102,1

Source: Census 2001, Census 2011, www.dzs.hr

Natural change in population and the final migration are the basic terms of the development of the population of a country or area (Nejašmić, 2005). The total population trends of the LAG *Škoji* can be shown from the first systematic national census conducted in 1857 to the last census in 2011. The population of the islands has been growing constantly since 1857 till 1900. Third inter-census period (1880-1890) has been highly dynamic when all the islands recorded population growth; except for the island of Vis (Fig 3). The growth has continued in the fourth inter-census period (1890-1900) when population culminated. Such natural increase is the result of high fertility and reduced mortality due to the improvement of general living conditions. Islands in the late 19th century had socio-economic growth with a large wine production, which pushed the development of trade, maritime and economy in general. Immigration of working-age population was also one of the results of the large production of wine. Although at that time began overseas emigration, a greater role in the overall population change had immigration especially of working-age population (Lajić, 1991).

According to the Census 1910, the island of Vis had culmination of number of inhabitant that year. After the 1910 census, the population has decreased primarily due to the large emigration, which occurred after the decay of the viticulture and due to the losses in the First World War. In the inter-census period 1948-1953 There was a small increase in population as a result of several reasons, such as the so-called the occurrence of post-war *babyboom*, then emigration abroad wasn't allowed yet, and industrialization of cities on the mainland and the deagrarization did not started yet (Nejašmić, Mišetić, 2006). In the period from 1953 to 1981 the population of the islands is reduced primarily due to emigration from this region (mainly to Croatian territory and the other republics of Yugoslavia and European countries). Depopulation becomes a serious problem for further socio-economic development of the islands. From 1981 to 2011, there was a slight increase and stagnation of the population through the development of the tertiary sector, particularly tourism, which contributed to stopping emigration from this area.

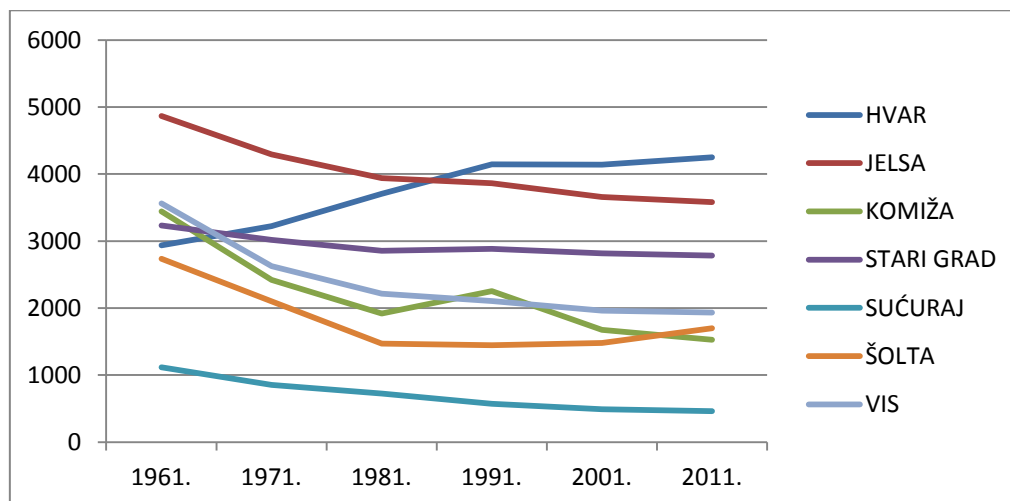
Figure 3 Population dynamic, 1857-2011 of LAG Škoji and three islands



Source: *Naselja i stanovništvo Republike Hrvatske 1857.-2001.*, Census 2011, www.dzs.hr

When it is word about administrative self-government units, in the 1961-1981 period all units had population decreasing except of City of Hvar. With development of tourism, Hvar had significant increase of number of inhabitants (Fig. 4). After 1981, drastically decreasing is stopped in other units with developing of tertiary activities.

Figure 4: Population dynamic of LAGs' cities and municipalities, 1961-2011



Source: www.dzs.hr

The last 30 years expressed the difference in the number of inhabitants of settlements on the coast and the inland settlements. The population of settlements in the inland of the islands is constantly decreasing while the population of the village on the coast increases from 1981 to 2011. Such a trend

can be explained by growing littoralisation that causes the concentration of population and human activities on the coasts (Nejašmić, 1999). Some settlements are totally abandoned (there are 3 settlements without inhabitants and islands Palagruža and Sveti Andrija), the population has left these agricultural activities and moved to larger settlements, especially those on the coast.

D. Natural change, net migration in population and types of population trends

Natural change of the population indicates the presence of biological natural factors and processes. In addition to biological factors important role in population growth have socio-economic, cultural, psychological, and many other factors. The basic components of natural population growth are the number of live births and number of deaths. One indicator of the natural changes is vital index, which indicates the number of live births to 100 deaths of people (Nejašmić, 2005). If is larger than 100 then it comes to expanded reproduction (population has increased, natural change is positive, so we are talking about natural increase), if the vital index is less than 100 it is a reduced reproduction of the population (population is reduced and it is about the natural decrease or depopulation). According to natural change in the period of 2001-2011, each island has negative natural growth rate, especially Šolta (-14.3) and Vis (-11.1). Very low vital index has Šolta, as result of large number of older inhabitants (Table 26).

Table 26: Natural change on the 3 islands, 2001–2011

Island	Number of birth	Number of death	Natural Change	Vital index	Natality rate	Mortality rate	Natural growth rate
					(‰)	(‰)	(‰)
Hvar	965	1369	-404	70,5	8,7	12,3	-3,6
Vis	263	653	-390	40,3	7,4	18,5	-11,1
Šolta	77	304	-227	25,3	4,8	19,1	-14,3
LAG Škoji	1305	2326	-1021	56,1	8,0	14,3	-6,3
Croatian islands	10.461	15.993	-5532	65,4	8,5	12,9	-4,5

Source: Tablogrami: Prirodno kretanje 1991-2010 godine, DZS, Zagreb; Lajić, Mišetić, 2013

Natural change of islands, predominantly tourist area brings in a certain credibility statistical census data because the population increase, which was created in migration trends should achieve at least a minimal increase in the birth rate. That did not happen, which confirms the assumption that some home owners formally sign in as permanent residents of islands (Lajić, Mišetić, 2013). Each of three largest islands recorded immigration in inter-census period of 2001-2011. Šolta had more than 28.2‰ of net migration, while Hvar had 3.4‰ (Table 27).

Table 27: Migration balance and net migration rate on islands of LAG, 2001–2011

Island	Population		Natural change	Migration balance	Net migration
	2001	2011			(‰)
Hvar	11103	11077	-404	378	3.4
Vis	3617	3445	-390	218	6.2
Šolta	1479	1700	-227	448	28.2
Croatian islands	122418	124955	-5532	8069	6.5

Source: Lajić, Mišetić, 2013

The basic conclusion about the change types on the LAG *Škoji* area refers to the crucial influence of the immigration. In the last intercensal period 2001-2011 LAG *Škoji* had a slight increase in population. LAG *Škoji* has I_4 type of general trends as a result of negative natural change and positive net migration. Looking individual islands, only Šolta has I_3 immigration type of general trends (Table 28).

Table 28: Types/models of population change on the three islands and LAG *Škoji*, 2001–2011

Islands/ LAG <i>Škoji</i>	Census change rate (‰)	Natural growth rate (‰)	Net migration (‰)	Type	Trend
Hvar	-0.2	-3.6	3.4	I_4	very weak regeneration immigration
Vis	-4.8	-11.0	6.2	I_4	very weak regeneration immigration
Šolta	13.9	-14.3	28.2	I_3	weak regeneration immigration
LAG <i>Škoji</i>	0.1	-6.3	6.4	I_3	weak regeneration immigration

Source: Lajić, Mišetić, 2013

E. Biological structure of the population

Average age and ageing index show unfavourable characteristics of islands and LAG *Škoji*. In 2011, LAG *Škoji* average age was 46.7 (without island of Šolta) (LDS LAG *Škoji*, 2013). Šolta with average age of 52.1 years has almost 8 years higher average age than island of Hvar and almost 6 years more than Vis. Average age in Croatia 2011 was 41.7 years, which is way less than LAG *Škoji* (Census 2011). Ageing index of the population of the islands reveals the seriousness of the demographic situation to them. In first analyzed period 2001, on ten young (0-14) there were 12 older inhabitants (65 and over) on the Hvar, and in 2011, on ten young there were sixteen old. Worst situation is on Šolta, where 2011 was 42 older on 10 young inhabitants (Table 29).

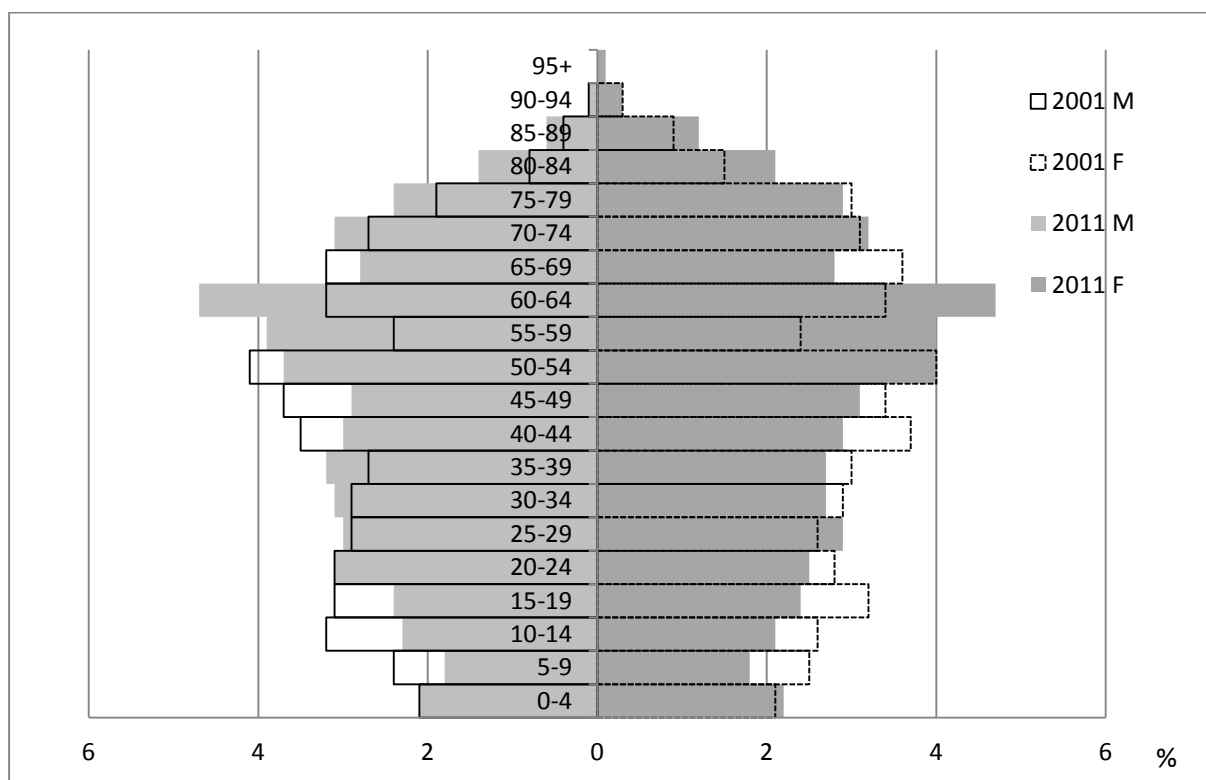
Table 29: Age population structure indicators of the LAGs islands, 2001–2011

Island	Average age			Ageing index (65+)		
	2001	2011	Change	2001	2011	Change
Hvar	41,9	44,6	2,7	125.4	164.8	39.3
Vis	44,3	46,4	2,1	175.2	193.5	18.3
Šolta	48,4	52,1	3,7	249.7	423.6	173.9
Croatian islands	42,1	45,1	2,9	130.8	173.1	42.4

Source: Lajić, Mišetić, 2013

In the LAG *Škoji* 2011 lived almost equally women and men. Age-sex structure with a shape of urn is and an example of extremely old, or contractive population (Fig. 5). The base of the structure is markedly reduced. Comparison of the age-sex pyramid in 2001 and 2011 shows a clear continuation of the aging population of the island, which is reflected in further narrowing the base and expanding the upper half of the pyramid.

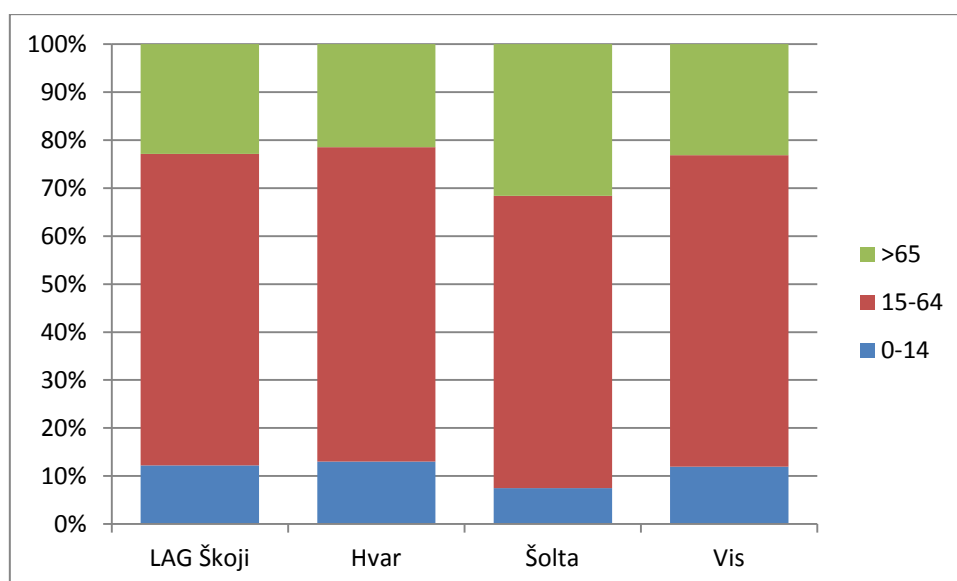
Figure 5: Age-sex structure, LAG Škoji, 2001 and 2011



Source: Census 2001, Census 2011, www.dzs.hr

Age structure 2011 shows very low share of 0-14 population and very high share of 65 and over population, in Šolta more than 30%, (Fig 6). As been already told, lack of 0-14 population is because of low birth rate and emigration to mainland.

Figure 6: Contingents of the population on islands and LAG Škoji, 2011



Source: Census 2011, www.dzs.hr

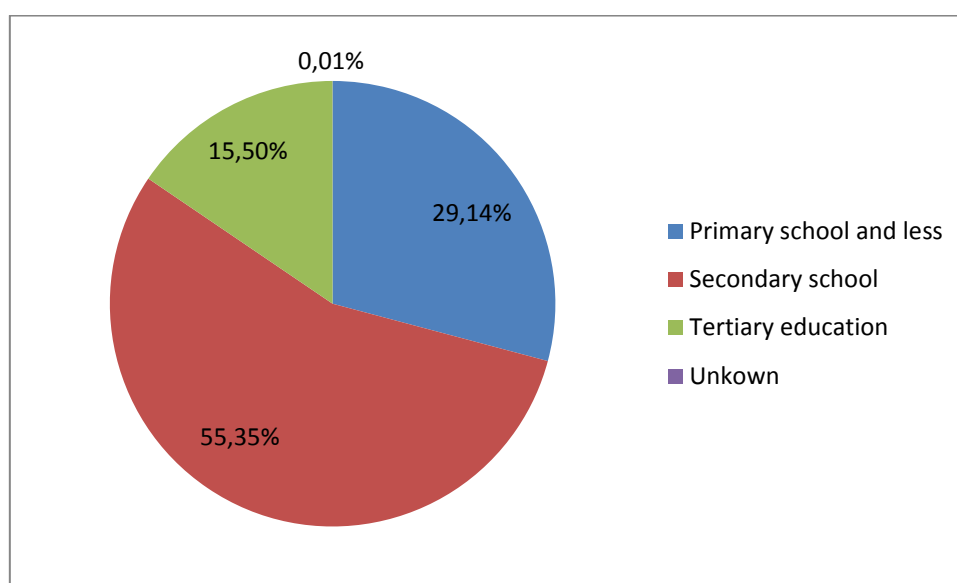
3. Socio-economic characteristic

The most important factors of socio-economic structure of the population are the economic activity of the population structure of employees by sector and educational structure.

A. Educational structure of LAG Škoji

The educational structure of the population makes it one of the most important characteristics of the population. According to the Census 2011, LAG Škoji has less favourable educational structure than educational structure of total population of the Republic of Croatia in 2011⁵⁷. Croatian share of the population with tertiary education in 2011 was 16.4%, while in LAG it was 15.5% (Fig. 7). Split as city with University has large impact on this fact. Comparing the educational structure in 2001 and 2011 can be observed positive trends of the educational structure of the population. Shares of the population without education and with elementary education are in decrease. Unbalanced and very poor educational structure is one of the indicators of unequal economic and social development among the LAG. The lack of highly educated workforce is limiting factor for development.

Figure 7: Educational structure of LAG Škoji, 2011



Source: Census 2011, www.dzs.hr

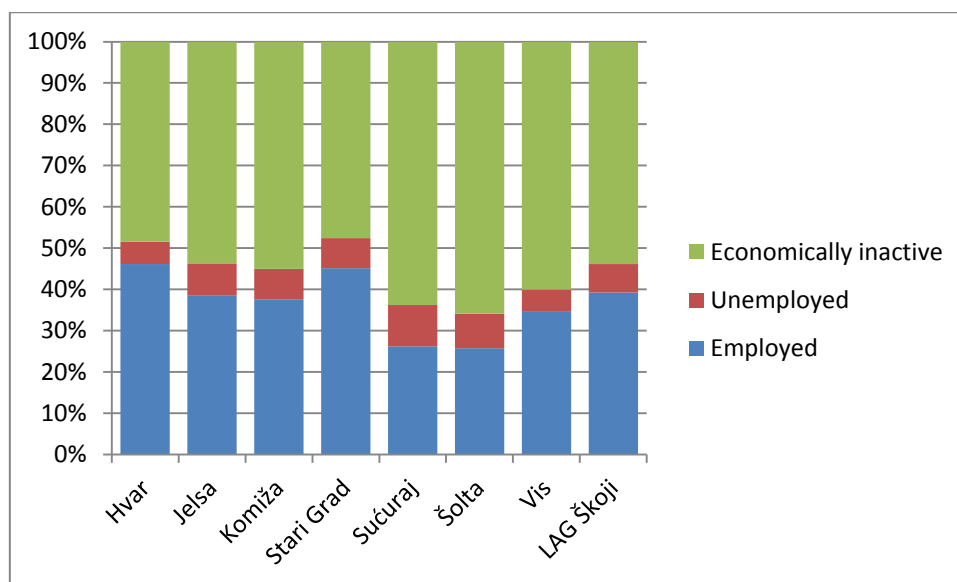
B. The population structure by economic activity

Economic structure of the population of an area is formed by the economic structure of active population. The labour force is the main subjective factor and initiative of the production and the basic dynamic component of economic development. The active population is the fundamental category in the analysis of the population as a factor of production (Nejašmić, 2005). Administrative units of LAG have very bad economic activity structure.

⁵⁷ Educational structure of Croatia, 2011: primary school 30.8%, secondary 52.6% and tertiary 16.4 (Census 2011)

Only Hvar and Stari Grad have higher rate of employed population than National level⁵⁸. That can be explained with development of tourism and tertiary sector in those cities, with administrative functions that they have and also with better demographic trends than other units. Other administrative units have less employed and more unemployed labour force. Share of economically inactive population is more than 50% in all units (except Hvar) and LAG Škoji. That can be connected with the proportion of older than 65% (Fig. 8). Islands with development of tourism provide jobs for seasonal employment.

Figure 8: Population by activity status, 2011



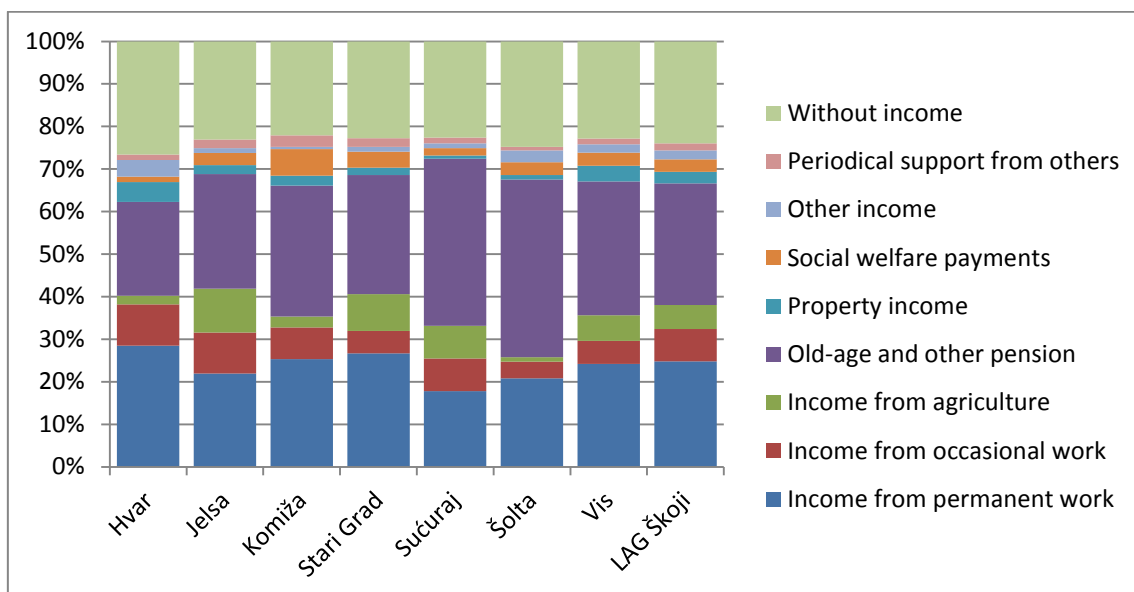
Source: Census 2011, www.dzs.hr

C. Population by main sources of livelihood

Main sources of livelihood mostly follow economic activity in each administrative unit. Population of Hvar and Stari Grad have highest share of income from permanent work, while Sućuraj and Šolta have lower. High share of population with pension have administrative units with the highest share with older than 65%, Šolta and Sućuraj. Highest social welfare has population of Komiža. Highest share of income from agriculture have population in rural parts of islands, especially next to the large arable land (Stari Grad plain and Jelsa plain) on island of Hvar in municipalities Jelsa and Sućuraj and City of Stari Grad (Fig. 9).

⁵⁸ Republic of Croatia economic activity rate; unemployed 8%, employed 41.4%, inactive 50.5%, unknown 0.1% (Census 2011, www.dzs.hr)

Figure 9: Population of administrative units by main sources of livelihood, 2011

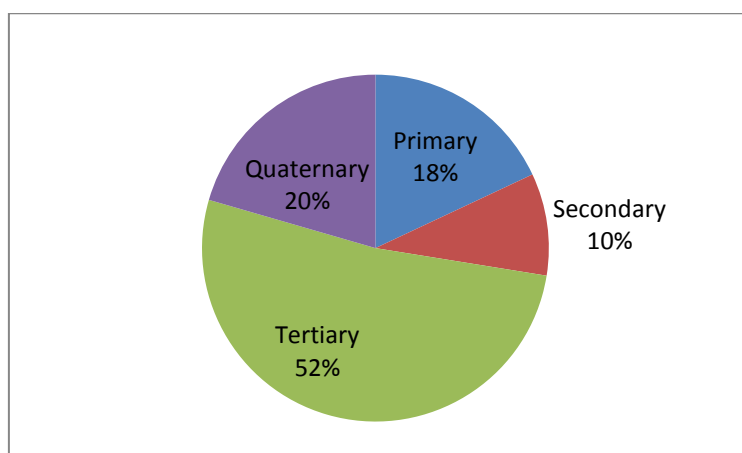


Source: Population by main sources of livelihood and sex, 2011 Census, www.dzs.hr

D. The structure of employees by sectors

The labour function of each community implies socio-economic changes, among other processes it leads to intensive urbanization in settlements. The share of employment in agriculture and industry are considered the most characteristic for the development of any settlement. Primary sector was most frequent in the economic structure of Dalmatia in the period before World War II. With industrialization after World War II, the share of secondary started to grow and later tertiary sector. Data for the structure of employee by sectors for 2011 are not available so in this work are presented the data for 2001. The structure of employees by sectors shows very high share of employees in primary sector (18%) and that share is almost 7% higher than one on National level (11.2%) (Census 2001). That is indicator of connections, which are still going between inhabitants and agriculture activities and fisheries on islands. High share of tertiary sector indicates development of tourism activities. Secondary sector has only 10% (Fig. 10) of employees, which is result of closed industries during last 30 years (production of plastics on Šolta, fish processing on Vis).

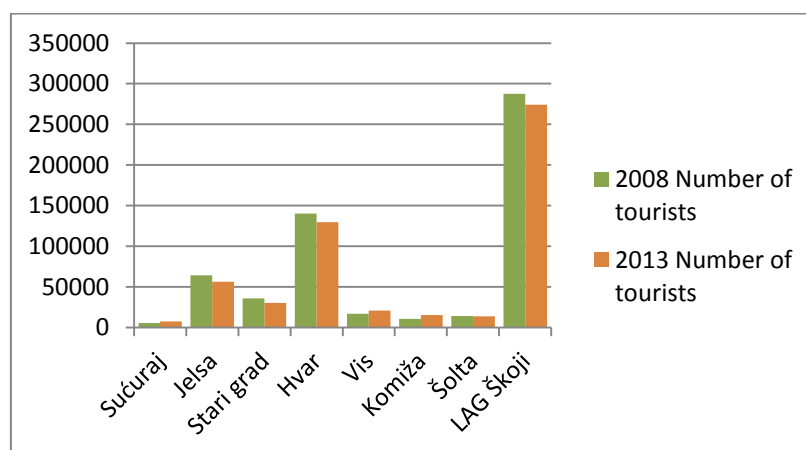
Figure 10: The structure of employees by sectors, LAG Škoji, 2001



Source: Census 2001, www.dzs.hr

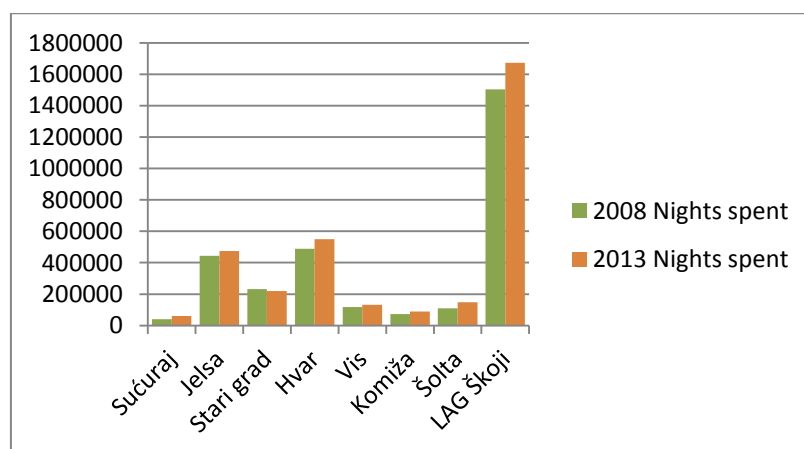
For long time agriculture and fisheries were main economic activities on the islands. After WWII, there was attempt to apply the model of "industry" such as plastic industry on the islands of Šolta and Vis, but it failed to keep the population on the islands (Radinović, 2002). The most developed activity on the islands became tourism, which is not surprising considering the fact that the area of the LAG is specific for its natural geographical features. Islands of Split-Dalmatia County are suitable area for further development of tourism. Analysis of tourist arrivals shows a key role in the development of the island of Hvar tourism. Island of Vis is specific because of the greater distance from the mainland, less traffic connections and the status of important naval base after WWII. The island of Šolta, although near the mainland, was strongly influenced by the gravity of the nearby city of Split, which has been focused primarily on industrial development (Glamuzina, 2011). Analyses of two main indicators of tourism (number of tourists and tourist nights spend) show decrease of number of tourist (-4.7%) and increase (16.9%) of night spend in touristic accommodations. Decrease in period 2008-2013 is because of global economic situation and recession, which started in that period. Also, number of domestic tourist in LAG area in 2013 was 27% lower than 2008. Still, income is higher because of more spend nights in administrative units. Private accommodation is more frequently because of lack of hotels, hostels and camps (Fig. 11 and 12).

Figure 11: Tourist arrivals in 2008 and 2013 by administrative units and LAG Škoji



Source: Statistička analiza turističkog prometa 2008, TZ-SDŽ, 2009; Statistička analiza turističkog prometa 2013, TZ-SDŽ, 2014

Figure 12: Number of nights spent at tourist accommodation establishments, 2008 and 2013



Source: Statistička analiza turističkog prometa 2008, TZ-SDŽ, 2009; Statistička analiza turističkog prometa 2013, TZ-SDŽ, 2014

E. Development index

Development Index is a new index of counties, cities and municipalities in Croatia, which would allow local communities to be eligible for support. The aim of Index is balanced economic development throughout the country. Index includes five values average income per capita, administrative unit budget per capita, average unemployment rate, Index of Census change and the share of educated people in the population 16-65 years. Based on the evaluation stage of development, Act defines the so-called *assisted areas*, which include local and regional units whose development index value is less than 75% of the Croatian average. Three administrative units from LAG are in the group III, where is Index value less than Croatian average. Other four units are in the group IV (100-125%) (Table 30).

Table 30: Development index of administrative units

Administrative unit	Average income per capita (HRK)	Administrative unit budget per capita according to national	Average unemployment rate,	Index of Census change	The share of educated people in the population 16-65 years	Development indeks	Group	
	2010.-2012.			2011-2001	2011			
Vis	24507	123.7%	16.90%	98.7	82.44%	101.81%	100-125%	IV
Komiža	24891	75.30%	19.90%	91.0	72.30%	86.60%	75-100%	III
Sućuraj	18301	89.8%	9.10%	94.1	74.81%	93.31%	75-100%	III
Stari Grad	23964	109.1%	10.60%	98.7	79.38%	102.45%	100-125%	IV
Jelsa	22106	112.4%	12.10%	98.0	80.54%	98.98%	75-100%	III
Hvar	27709	194.7%	9.90%	102.7	84.75%	122.39%	100-125%	IV
Šolta	25165	190.3%	18.90%	114.9	80.95%	116.13%	100-125%	IV
Croatia	28795	100%	16%	96.6	77.74%	100%		

Source: Vrijednosti indeksa razvijenosti i pokazatelja za izračun indeksa razvijenosti na lokalnoj razini, www.mrrfeu.hr

4. Evolution and evaluation of agrarian system and environmental protection in LAG Škoji area

As been already told, agriculture and environment were always observed separately. In next lines there would be some words about general agrarian organization and development of agricultural production and because of that a formation of cultural landscape. New beginning in protection of environment should give ecological network Natura 2000.

A. Organization of agriculture in Dalmatia and LAG Škoji

In first paragraphs it would be words about organization of the agriculture on the islands, Dalmatia and the Croatia in general. Cooperatives as a form of operating in Croatia have long and deeply-rooted tradition. From the beginning, Croats lived in organized communities with strong hierarchical structure based on the territorial division. During feudal times, large importance had house cooperative (Croatian – *kućna zadruga*), which was not just a form of organized economy, but also a fundamental form of social organization. Those kinds of cooperatives were mainly related to farming and cattle breeding. In the middle of 19th century, it came to the abolition of feudalism and Croatian country is slowly being transformed into modern civil society. By the end of the 19th century main organization

of agriculture was cooperative (Croatian – *zadruga*) and in the early 20th century it becomes extremely important economic factor in Croatia. The roles of cooperatives were purchase, sale and processing in all economic activities not just agriculture (Babić, Račić, 2011). In Dalmatia, first cooperatives were credit ones (on island of Koručula) and the first cooperative in LAG *Škoji* area was established in 1892, Rosemary Cooperative, on the island of Hvar in Velo Grablje, which continues its activities even today. Their tradition was in production of essential oil of rosemary and lavender. Other cooperatives were established later, at beginning of 20th century. From 1907 when it was founded, all Dalmatian cooperatives were under Cooperative Alliance of Dalmatia. In the period between two wars, cooperatives and population were affected by the great agrarian crisis and changes of political situation. Number of cooperatives and their activity significantly increased after crisis until WWII but even during the war because cooperatives took over supply of the population with all necessities (Mataga, 2005).

After WWII and establishment of the communist regime, cooperatives in Croatia went through its most difficult phase. It was time of collectivization and nationalization of ownership and many cooperatives and alliances that were not according communist ideology were disappeared or because of circumstances, their productivity reduced. Agricultural cooperatives were in better position and they mostly just had radical changes. Problems for agricultural cooperatives started during 1960s when they became part of state agricultural goods, which became the main carriers of development of agriculture. In that period in Continental Croatia were founded large agro-industrial combines, which took over development of the agri-food industry. Number of agricultural cooperatives in that time reached their minimum. Survived cooperatives were mostly those in Dalmatia and on the islands due to their monoculture production of olive growing and wine making and due the smaller production capacity. Because of that there was not needs for large combines (Mataga, 2005).

After the WWII it started, as already been told, large socio-economic changes. Also during that time, quantity was above quality, especially of wines. Differentiated economic development or the development of non-agricultural activities has started a social restructuring of the population from the primary to the secondary and tertiary sector activities. Social restructuring and spatial redistribution of the population caused changes of the cultural landscape, demographic structure, way of livelihood and economic activities (Pejnović, 1978). In the last twenty years industrialization is not reason for deagrarization. War at beginning of 1990s and transition crisis led to major social changes including deindustrialization and tartarisation. The unfavourable economic situation of agriculture and the social status of farmers, inadequate national economic policy, small and plotted parcels, significantly lagging of agricultural income compared to the income in other sectors and general dissatisfaction with life in small communities are also one of the reasons deagrarization (Živić, 2003).

With the establishment of the independent Croatia, cooperatives started their stagnation and struggle for survival. War in the first plan and then acts and regulations were not certainty favourable for the activities of the cooperatives. Better situation came after 1995 when Cooperatives Act and its amendments in 2001, 2002 and 2011 were brought and cooperatives were recognized as economic subjects. With the Act were created conditions for the development of the modern cooperatives that should be protection of small producers on the market where conditions are usually dictated by big producers. Today, Cooperatives are actually small businesses with more activities and with its members conclude business deals (e.g. the purchase of products), enter the market and conclude business deals with third parties. Cooperative members are mostly employees of the same while the number of other members (farmers) is symbolic and they do not have decisive factor in the ownership structure of the cooperative. The main problems of cooperatives are large fragmentation and incoherence of cooperatives. Such economic subjects are poorly integrated into the market (Mataga, 2005) and were confirmed by all interviewed cooperative members during fieldwork on the islands.

Today, conditions of the cooperatives on the islands are not going in good direction. For example, on the island of Vis there are three agricultural cooperatives. One is primary for the wine (Cooperative *Vis*) and other two (*Podšpilje* and *Komiža*) are with mixed activities (wine, olive, medical and aromatic plants, carob etc.). Their bad condition is due to market issues, competitiveness and

unprofessional management. Cooperative *Podšpilje* in the inland of Vis is in worst condition, they do not have attractive real estate like other two to have additional income from that and they are in pre-bankruptcy. Cooperative *Komiža* is still surviving because of carob exploitation and its transformation to the first and second saw material and then selling to the Croatian factory of spices as their only purchaser. In terms of aromatic and medicinal plants, the tradition of wild picking and transformation is individual and does not result in a valorisation for wider market but on the island of Hvar there is still Rosemary Cooperative. On the island of Šolta, in 2012 there was the plan of development of agriculture on the island initiated by the Municipalities and several farmers who saw their future in agriculture. They founded Cooperative *Šoltanka* and started to plan next steps. Unfortunately, not even 2 years after, the project stopped because of lack of money and some interest groups were made as negative side. Now, on the island, there is only one active cooperative and it is for oil transformation where local people come to process their olives.

According to Strategy for rural development, family farms (Croatian: *Obiteljsko poljoprivredno gospodarstvo*, OPG) should be carriers of rural development. That kind of organization was familiar during history and it had its difficulties. By legal definition, OPG is an independent economic and social unit consisting of an adult household member, and is based on the property ownership and/or the use of productive resources in carrying out of agricultural activities. The importance of OPG's is their impact on the conservation of agro-biodiversity and sustainable management of resources.

B. Changes in agricultural production of the islands during history

During centuries, inhabitants tried to use all natural resources the islands were offering to them. Islands were mostly self-sustaining with the exchange of goods with other islands and mainland. Until second half of the 20th century, agriculture and fishery were basic economy. In next paragraphs, there would be words about agriculture from the second half of 19th century and activities that made cultural landscape of the islands.

During history, economy of islands in LAG *Škoji* was mainly based on the viticulture and olive growing. Even in ancient times, wine and oil were most important export products. In addition to these productions, other Mediterranean cultures were grown also such as fig, almond, carob and more recently citrus fruits. Sheep and goat breeding were also significant but not that much like in hinterland of the Dalmatia or on the islands of Pag, Kornati and Brač (Radanović, 2002). The most significant development of economy on the islands (vine cultivation and wine making) started after epidemic of phylloxera, which devastated vineyards in Britain and then moved to the European mainland. Phylloxera is a pest and it attacks grape vines, its underground and aboveground parts. Namely, in 1863 phylloxera was brought from America in Britain with American vines and few years after it came to the South France and Italy and it destroyed most of the vineyards and because of that, production of wine moved to the eastern part of the Europe where phylloxera didn't come yet⁵⁹. One of the parts became the islands where started to grow demand for wines, export and price of wines. Due the high demand, new vineyards were massively planted, often on the extreme locations such as steep slopes and on the most valuable land for crops. In that period, hectares of vineyards reached maximum. After, it just started to decline due the renewal of vineyards in European countries and unfavourable agreement between Austria-Hungary and Italy, so-called Wine clause. That agreement gave preferential imports of Italian wines, while Dalmatian wine production was disadvantaged, prices started to decline and wine in the stock started to grow. In 1894, phylloxera came in Dalmatia and it has devastated vineyards and after that started real crisis of population (Ozimec *et al.*, 2009). The economic crisis in the late 19th century and early 20th century caused by vine diseases, agricultural overpopulation and other reasons resulted with large emigration of population, especially to overseas

⁵⁹ <http://www.enciklopedija.hr/Natuknica.aspx?ID=64741>

destination of North and South America and Australia. Yet, in the first decades of 20th century inhabitants continued to work on vineyards. Recovery and renew by grafting of vineyard were very slow and area under vineyards never reached period before diseases. For island of Hvar were significant common wineries between wars, instead of the previous individual tavern, in, which all the grapes were delivered and after sale, income was shared by the amount of grapes (Miličević, 1982).

To change agricultural activity due the crisis of the viticulture inhabitants turned into intensive valorisation of other cultures such as medicinal and aromatic plants. Economic valorisation of the rosemary started since the 17th century and it's increased during 18th century especially on the islands of Hvar (Fig. 13) and Šolta and later on the Vis. Except rosemary, valorisation of the *Tanacetum cinerariifolium*, *Helichrysum italicum* (immortelle) and *Salvia officinalis* (sage) was also significant (Ozimec *et al.*, 2009). Problem is that there is no reliable data about that production, not even today. Significant period for Hvar's agriculture started in 1928 when was first lavender planted in the settlement Velo Grablje. During next 20 years only 4 ha were under lavender, in 1950s 80 ha, and during 1970s 720 ha with the production of a 70 tons of oil per year (Ozimec *et al.*, 2009). Lavender cultivation on the island of Hvar made characteristic agricultural landscape with terraces. Production of lavender oil today is very low. Reason of that is already mentioned abandonment of agricultural activities, cheaper products from other countries, unorganized market and especially fires that burned groves. Fires in 2003 were devastating in, which more than 2000 ha of maquis, forest and lavender were burned.

Figure 13: Picking of rosemary, the island of Hvar, 1920s



Source: forwarded by Bibić Z. (2014)

Cattle breeding on the LAG Škoji's islands were not that important like in other parts of Dalmatia so its development was mostly as complementary agricultural activity. The environmental conditions (soil, climate and vegetation) were extremely unfavourable for the development of larger livestock, so in whole Dalmatia, breeding was traditionally relied on small livestock of sheep and goats. Breeding in Dalmatia was extremely well developed and sometimes in extreme conditions such are islands of Pag and Kornati. Domestic sheep is *Dalmatinska pramenka* and during Venetian rule and in the Austro-Hungarian times there were attempts to systematically improve the cattle when the domestic sheep were cross breed with merino sheep. As result of isolation own sorties of sheep were developed in that conditions like on the islands of Brač, Silba, Pag, Kornati and Olib (Ozimec *et al.*, 2009). Sheep were mostly held in small numbers, in fenced olive groves and during one part of the year, they were grazing in the karst pastures. Growing these sheep was primarily aimed at the production of lambs. Island of Brač had the largest number of sheep between Central Dalmatian islands (Radinović, 2002).

Goats breeding have a long tradition but due to uncontrolled grazing which had influence on the development of forests in karst area, in 1954 was adopted Act of Prohibition the Keeping of Goats.

After that measure, the number of goats was drastically reduced. On the islands of Hvar, Šolta and Vis the reasons of small number of goats was due to large share of agricultural land. That is why goats were mostly for individual use in small cattle. Goats and sheep are ideal for open field extensive to semi-intensive farming in the completely Dalmatian area from the economical (minimal investment, traditional products and touristic attractiveness) and environmental point of view, because this animals maintain biodiversity and landscape characteristics (Ozimec *et al.*, 2009). On the islands, there was significant number of working animals. Rapid decline in the number of horses, donkeys and mules happened because of mechanization (Radinović, 2002).

Characteristic of the economy of the islands is development concept of mixed economy, which means development of agriculture and development of non-agricultural activities. For the total island economy, differentiated development is important since the development of monocultures on Croatian islands throughout history led to the economic crisis. Unfortunately, most of mentioned production lost its importance in the last thirty years. Vineyards were drastically reduced to one-third and production of medical and aromatic plants. Main problems were in unorganized market, lack of competence and transport of products. Only olive has not suffered the fate of decay like other cultures and it is largely maintained although, olives trees were cut down, new trees were planted or old one were restored (Radanović, 2002).

C. Formation of agricultural landscape

Agriculture was until the middle of the last century the main economic activity of the islands and because of that, agricultural land was occupied by large surface of area. People lived from the land, which human created in the karst. They cleared the bushes, smashed the stone, build dry stone walls and arranged stones in piles (Croatian - *gomila*). Also they drained land and created cracks (cassettes), parcels of land for planting vines, figs, olives, lavender and other cultures. They were cutting of and they were burning forests to clear land. In the late 19th century there were rapidly spreading of areas under gardens and vineyards (followed by the decrease of pasture areas), with slight decline in area under olive trees in favour of vineyards. Over the past century, especially at the end of it (due to the development of tourism and service sectors), utilized land is significantly reduced, especially slopes with terraces, because of mechanization in fields and less productive land. *Karst poljes* represent the type of cultural landscape that has the largest share of utilized area. Because of intense agricultural production in the past, large areas on the islands were covered with dry stonewalls and they are mostly located on steep hill slopes in order to increase the area for agricultural production. Nowadays agricultural production is mostly abandoned and this type of landscape is mostly overgrown (Lozić *et al.*, 2012).

When we are talking just about island of Vis, there can be distinguished three main types divided in subtypes of integrated physical and cultural landscape. General types of landscape are *karst poljes*, slope surfaces and the coast. *Karst poljes* are fully integrated type of natural and cultural landscape because of their anthropogenic evaluation. Slope subtypes are divided in natural geographic criterion of the existence or absence of vegetation and socio-geographical criterion of the existence or absence of area under dry-stone walls. Coast types are divided in four subtypes: steep coasts in limestone, low coasts in limestone, coasts in clastic sediments and urbanized coasts (Lozić *et al.*, 2012). This division is applicable also in islands of Hvar and Šolta. All three islands have *karst poljes* with anthropogenic evaluation history. Their difference can be found in slope subtypes and socio-geographical criterion of the existence or absence of area under dry stone walls and terraces. Intensive building of dry stone walls and terraces started with increasing of wine production. But after decreasing of that kind of production, lavender growing on the island of Hvar (western part) and olive groves on the island of Šolta (especially NW part of island) made cultural landscape of slopes still along with the vine grape cultivation, what we can still see today, although, production is at low level, especially of lavender. Island of Vis remained mostly area of viticulture, but slopes are abandoned and main production comes from *karst poljes* (Fig. 14).

Figure 14: Abandoned terraces of vine grapes and lavender on the Vis and Hvar



Source: Djenaihi M. (2014), author (2014)

Conservation offices by Ministry of culture are working on protection of dry stone walls masterpieces and several locations are protected for now (water tank on the location Lorca and vineyards under Muster on the island of Vis). But for now, The Cultural Monuments Protection and Preservation Act is still not enough. Architectural structure of boundaries of cadastral parcels in the terrain marked by dry stone walls, retaining wall terraces, roads, livestock shelters, building water supply, houses and other buildings are endangered and exposed to modern pressures of development. Abandonment of traditional agricultural production, emigration and depopulation of the inland settlements leads to the extinction of traditional crafts, including the art of building dry stone walls, which has been passed from generation to generation. Local population does not recognize the value of space that is centuries shaped by human hands and conservation measures and the protection of traditional landscapes they see as threat to their development. However, real threat is by converting unutilized and abandoned agricultural parcels into building land and often converting dry stone walls into illegal quarries and stones used as a raw building material. In spatial planning, cultivated landscapes are treated as unbuilt space even it has been built with numerous traditional buildings (Buble, 2009).

a] Stari Grad Plain, UNESCO site

Since 2008, the island of Hvar has UNESCO site Stari Grad Plain (Fig. 15) and its outstanding universal value represents agricultural area of 1.377 ha (buffer zone: 6.403 ha), bounded and divided by evenly placed dry stone walls more than 2400 years old, since it was first colonized by Ionian Greeks. That ancient geometrical system of land division (cadastral system), Stari Grad Plain (Greek - *chora*), is a cultural landscape and the original agricultural activities were mostly oriented on grapes and olives. Except of dry stone walls, this area has other landscape characteristics such as trims, small stone shelters and a rainwater recovery system with use of tanks and gutters with archaeological sites. Initiation of becoming a UNESCO site came from local associations and Conservation Office in Split within Ministry of Culture. Stari Grad Plain has been satisfied three criterions for designation on the UNESCO World Heritage List:

- Criterion (ii): *“The land parcel system from 4th century BC shows the dissemination of Greek geometrical model of dividing of agricultural land”*

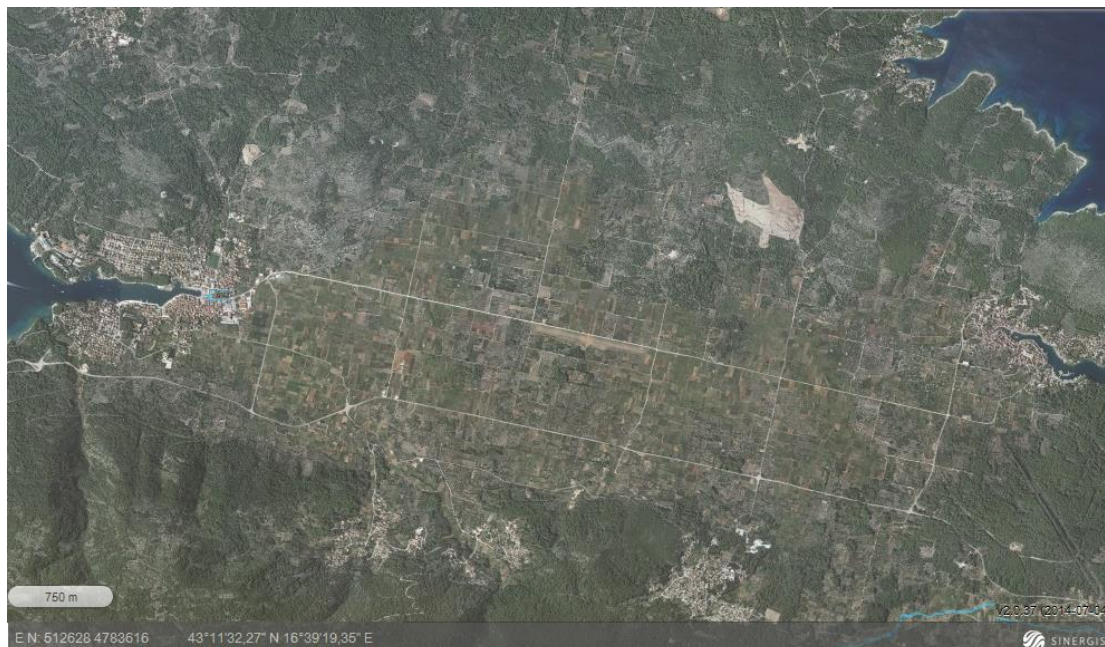
- Criterion (iii): *“The same initial crops have been produced in the Plain for 24 centuries as an evidence of its permanency and sustainability”*

- Criterion (v): *“Stari Grad Plain and its environment are an example of very ancient human settlement and today is under threat from modern economic development, depopulation and the abandonment of traditional farming practices”*.

Comparing The Causses and the Cévennes, Mediterranean agro-pastoral Cultural Landscape, and Stari Grad Plain, two criterions are in common, criterion (iii) and criterion (v), except Stari Grad

Plain is more than 200 times smaller than French site. Recent situation is not even close like previously times on the largest fertile field on the Adriatic islands. It was estimated that only about 40% of the agricultural land is actually cultivated in the Plain (Management Plan, 2008). Reasons of that can be found in land fragmentation, people don't see any benefit from cultivation, owners of the land are not resident and lack of interest in general.

Figure 15: Stari Grad Plain, UNESCO site



Source: <http://preglednik.arkod.hr/ARKOD-Web>

The Stari Grad Plain as cultural monument and at same time agricultural land is included by two acts, Protection and Preservation of the Cultural Heritage, Agricultural Land Act and Forests Act. Forests and forest land as properties of common interest have large importance and they are used under conditions of the Forests Act. General use functions of forests are orientated in the protection of the land, the roads and other facilities against erosion, fire and flood. Also forests have influence on soil fertility, agricultural production, climate, improvement of the environment, quality of life in general the landscape characteristics. Legal entities that manage forests and owners of forests have to afforest burned and devastated areas and to protect forests from illegal cutting. *Hrvatske šume* as Public Company was established to manage activities of state-owned forest and forests land. By the Agricultural Land Act, owners and occupiers of land are obligated to cultivate land without diminishing its value and with appropriate agricultural measures. State-owned agricultural land can be leased to an individual or a legal entity and priorities in leasing have family farms (Management plan, 2008).

Management body of the Stari Grad Plain UNESCO site is Public Institution Agency for the Management of Stari Grad Plain founded in 2008 by City of Stari Grad (2/3) and Municipality of Jelsa (1/3). Its activity is the management of the Plain, its protection, maintenance and promotion of its cultural and natural values, and the promotion of sustainable development of traditional agriculture and other activities determined by the Statute of Agency. Agency is independent in carrying out its activities and operations, in accordance with law and regulations based on law, the Agreement on the Establishment of Agency and the Statute of the Agency, professional standards and modern scientific achievements. Bodies of Agency are Manager and Administrative council with five members; two

representatives of administrative unit Stari Grad, one from Jelsa and one representative of Ministry of Culture and one of Ministry of Agriculture⁶⁰. For now, largest contribution of Agency in revitalization of agricultural production is project *Branding of yields of the Stari Grad Plain*. The importance of this project is to encourage and assist farmers to sell easier their products and promoting the Stari Grad Plain. The implementation of this project should create conditions for better cooperation between the competent services of the ministries, Agency and farmers in the conservation of dry stone walls, as well as individual archaeological sites in the Plain. A special contribution to this project is the sustainable development of agricultural production and more than 60 farmers (registered in the Register of agricultural producers) that are involved in this project⁶¹.

b] Changes in the agricultural landscape

Disappearance of cultural heritage such as the cultural landscape and skills related to traditional crafts are affected by the depopulation and its connected unfavourable demographic structure of the population. Due to the decreasing number of inhabitants, as well as lifestyle changes associated with modernization, technological innovation and accepting elements of urbanization and structural economic change (simultaneous deagrification and tartarisation), cultural heritage is exposed to the transformation or disappearance (Faričić *et al.*, 2013). Inhabitants of the islands are taking advantage of agricultural soil and with traditional management of other natural resources they created cultural landscape as important part of the cultural heritage. In accordance with the depopulation, cultural landscape is changing radically. It forms the so-called *depopulation landscape*. Depopulation contributes to the impoverishment of culture; although in densely populated areas decrease of population can have positive effects, for example, can reduce the pressure on the individual elements of the cultural heritage (Lajić, 2000) but it is not case in LAG *Škoji* and islands in general. Depopulation landscape is reflected in abandoned parts of the settlements or whole settlements (especially those in inland of islands), abandoned olive groves, vineyards and terraces of lavender, etc. It is also connected with deagrification, as a result of abandonment of agriculture in order to re-orientation of the population to more profitable economic activities (Faričić *et al.*, 2013). Depopulation can be also seen through littoralisation, which is in Croatia marked by intense socio-economic activities along the narrow coastal part of the mainland, mostly in coastal regional centres (Faričić, 2012) in this case it is large influence of regional centre Split. On the islands, number of working population is low and remaining older population cannot longer cultivate the land (Faričić 2010). Disappearance of the traditional elements of the cultural landscape is also affected by the conversion of agricultural zones in the construction zones and by illegal construction near to the agricultural land. The cultural landscape disappears under the vegetation that overgrows vineyards, olive groves and pasture landscape with high biodiversity. Overgrowing gives a way to the landscape of Mediterranean maquis and forest, very often to invasive species of Aleppo pine. Other threats for cultural landscape are buildings with their size and shape, used materials and the colour do not fit with the traditional architecture. Dry stone walls are also endangered with overgrowing or collapsing under the influence of vegetation and using in order to build infrastructure from it (Faričić *et al.*, 2013).

Croatia's legislation provides for the protection of landscapes a special category of significant landscape (the *Nature Protection Act, NN 80/2013*). Stari Grad Plain has the highest level of protection due preserved remains of cultural landscape inscribed on UNESCO's World Heritage List. Changes of insular landscape quantitatively are possible to present with cadastral data and shares of certain categories of land use. Unfortunately, more recent data were not credible because agricultural production is no longer the basic economic activity, so the interest of individuals and the whole community for the constant update of cadastral data is not that strong anymore (Faričić *et al.*, 2013).

⁶⁰ http://starogradsko-polje.net/UserFiles/File/STATUT_%20Javne_ustanove_Agencija_za_upravljanje_Starogradskim_poljem.pdf

⁶¹ <http://www.starogradsko-polje.com/index.php/zoo.html>

With development of ARKOD system, situation should be better in the near future. One of the methods can be also the bi-temporal pairs of photos (showing the same area recorded at different times) and it can be used for quantitative and qualitative overview of changes in the landscape (Faričić *et al.*, 2013). Usually changes are in terms of reducing the share of arable land, increasing maquis and forest area and increasing construction zones.

Figures 16 and 17 are the example of recording from the air before 1968 and in 2011. For long time, Croatian footage were in the Military geographical Institute in Belgrade and after negotiation between Zagreb and Belgrade one part is in State Geodetic Administration in Zagreb in phase of processing. First figure shows changes in the town of Hvar where during of tourism activities construction zone spread to the east of the town on the damage of agricultural land. Also, hilly northern part became covered with maquis and forest. The same thing happened to much smaller settlement Maslinica on the NW of the island of Šolta. Namely, Maslinica in literal translation for Croatian language means small olive and on the figure terraces with olive trees can be see clearly. Maslinica with several numbers of houses in 1967 also became touristic nautical centre on the island and number of vacation houses increased. Terraces are now covered with vegetation with houses build on them. Small number of remain olives became part of the gardens.

Figure 16: City of Hvar, 1967 and 2011



Source: DGU, <http://geoportal.dgu.hr/>

Figure 17: Maslinica, the island of Šolta, 1967 and 2011



Source: DGU, <http://geoportal.dgu.hr/>

Photos from the field work on the island of Vis show abandonment of slopes in this case terraces previously used for vine grape cultivation (Fig. 18). With mechanisation and general abandonment of agricultural activities, vineyards on slopes are over more than five decades in process of succession of vegetation and vine grape cultivation remain only in the field where soil is most precious.

Figure 18: Example of succession, 1944 and 2014



Source: <http://fototeka.sabh.hr/FotoAlbumi/Fotografija/1648>

D. The Agricultural Land Act

The Agricultural Land Act from 2013 regulates maintenance and protection of agricultural land, agricultural land use and change of use of agricultural land and fees. It also regulates management of agricultural land owned by the Republic of Croatia (the state-owned), Land Fund, the Agricultural Land Agency, administrative and inspection control and penalty provisions. Agricultural Land Agency activities are management and acquisition of agricultural land, mediator role, providing assistance, networking and coordination in terms of agricultural policy measures and other policies that have impact on the consolidation of agricultural land. In 2008 version of the Act there were also included privately owned agricultural lands, but Constitutional Court has been abolished provisions that regulated the selling, leasing and concession of privately owned agricultural land. One of the reasons of abolishing was that the Act would not contribute to improving the situation of agriculture if it was not taken in combination with other measures of agricultural policy. Agency lost that activity but still it may acquire agricultural land on a voluntary basis of owners, and also use that land in the procedures of land consolidation. The consequence of this Court's decision is reflected in the large areas of agricultural land in private ownership that are still abandoned and not included in the procedures of land consolidation, which is, among other things, an important factor of Croatian farms to become more competitive. Disposal of state-owned agricultural land has the same concept as it was carried out and in accordance with the Agricultural Land Act of 2001. Administrative units bring Agricultural Land Disposal Programme and its Amendments to the approval of the Agricultural Land Agency. The Programme contains a list of cadastral parcels of agricultural land owned by the state that are planned for various forms of disposal, such as leasing, selling and concession, common pastures, as well as for the return of property and other purposes. Then administrative units or Agency will have public tender for the sale or rent in accordance with the Programme⁶².

One of the obstacles for the placing of private agricultural land in the function is unsolved ownership relations. It is expensive project and it needs time to resolve the issue. Croatian laws clearly define the process of resolving property relations can be run exclusively by the property owner or his authorized agent. Agency as a public institution does not have such a possibility. However, the Agency may provide assistance in resolving property relations on agricultural land in the procedures of land consolidation. Agency can gather and organize the provision of necessary services, such as surveying and legal services.

By the Act, agricultural land are arable land, meadows, pastures, orchards, olive groves, vineyards, fishponds, swamps and other land that besides the economic eligible costs may be used for agricultural production. The non-forest land and land covered by the initial developmental stages or degraded forest (*maquis*, *garrigue*, bushes, shrubbery etc.) are also suitable for agricultural production. State-owned pastures can be given for grazing to a period of 5 years as common pasture inside and outside the protected area. According to Yearbook 2005 in Croatia there was 2.695.037 ha of agricultural land with 33% of state-owned land (890.214 ha) and 67% of private-owned. Of that 33%, only 29% was utilized land and other 71% was not. By the report from the Agricultural Land Agency, about 270.000 ha of agricultural land have been putted in function after they started to work. Disposal of agricultural land is regulated with the Agricultural Land Act and Strategy of Croatian rural development.

Still, about the Act there are many negotiations from farmers and profession. Professionals, who are familiar with the overall problems of agriculture, argue that the Act generally favours large or powerful family farms that already have large capital. For example, from the beginning of procedure, small farms already have less number of points in granting priority to the purchase of state-owned land. That kind of Act is not motivating for small-scale farmers, especially in the Dalmatian hinterland and on the islands where farms are limited with natural basis. Also, there is always issue of

⁶² <http://www.zakon.hr/z/133/Zakon-o-poljoprivrednom-zemlji%C5%A1tu>

denationalization and privatization of agricultural land and data are not always updated. In the Strategy, where family farms are carriers of agricultural development and basic type of organization of agricultural production in Croatia, as main problems are mentioned sizes and fragmentation of parcels and increasing share of older people.

The owners and holders of agricultural land are obliged to cultivate land by applying the necessary agricultural measures without diminishing its value. The Minister responsible for agriculture brought the Agri-technical Measures Regulation in 2013. This measure considers minimum level of processing and maintaining of agricultural land, prevention of overgrowing of vegetation, control of plant diseases, the use and destruction of plant remains, maintenance of soil structure and protection from erosion. The owners and trustees of agricultural land are required to implement the measures. Responsible bodies for supervision of the implementation are agricultural guards and authorized inspection in accordance with regulations on agricultural land and the regulations of fire protection⁶³. Agricultural guard has no authority to punish, but only to record and sent warnings. However, guard is the one who initiates the procedure by, which the offender may end up in court and pay the appropriate penalty. The agricultural measures are still in process of starting so all administrative units still do not have their own regulations and guards. There is a large resistance by owners of the land, which are not satisfied with those regulations, conditions of measures and penalties.

For this work, Agricultural Land Agency was asked if they have information on the number of hectares of state-owned agricultural land in the administrative units of LAG *Škoji*. Their answer was that Agency is currently working on developing an information system that will have in one place all the information about the state-owned agricultural land. It is expected that system will be available in the first half of 2015. At this time, the Agency does not have data that was required. Therefore, they advised to call the administrative units and to ask them to provide the information because, with the previous Agricultural Land Act, they were obliged to draw up a programme of disposal of state-owned agricultural land. Unfortunately, after contacting all seven administrative units they mostly told that they do not have developed programme for disposal of state-owned agricultural land nor disposal of agricultural land in general. Only administrative units that have made programme are Hvar (14.3 ha on the area of settlement Velo Grablje) and Jelsa (5.11 ha). That number shows low state-owned agricultural land in these units. Units which haven't programme are Šolta, Sućuraj, Stari Grad and two cities from the island of Vis.

E. Agricultural land use

According to Agricultural Census 2003, in the LAG *Škoji* there are 7650 ha of available land. Total available land comprises total utilized agricultural land and other land. In this case, administrative units with large field are on the island of Hvar have largest hectares of available land (Jelsa, Stari Grad and Hvar) (Table 31). The total available land on island of Hvar is 5807 ha, about 20% of total surface of island. Islands of Vis and Šolta have about 12% of available land area of total surface. About one third of all available land in LAG *Škoji* is utilized (Fig. 19). Less hectares of utilized land has island of Šolta (18.57%), which was observed in fieldwork in September of 2014, and some local people confirmed according their experience that the percentage is even lower, around 10%. Other land is divided in forest land and unutilized land. Largest forest lands have islands of Šolta and administrative units of Stari Grad and Jelsa (Fig. 20).

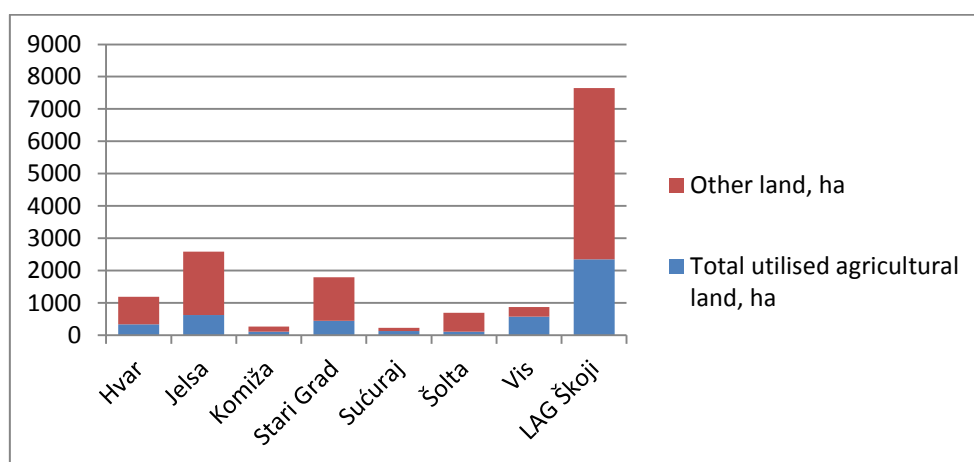
⁶³ http://narodne-novine.nn.hr/clanci/sluzbeni/2013_11_142_3051.html

Table 31: Total hectares of available land, LAG Škoji, 2003

City/municipality	The total available land, ha
Hvar	1188.63
Jelsa	2592.23
Komiža	266.77
Stari Grad	1798.17
Sućuraj	228.49
Šolta	699.37
Vis	876.73
LAG Škoji	7650.39

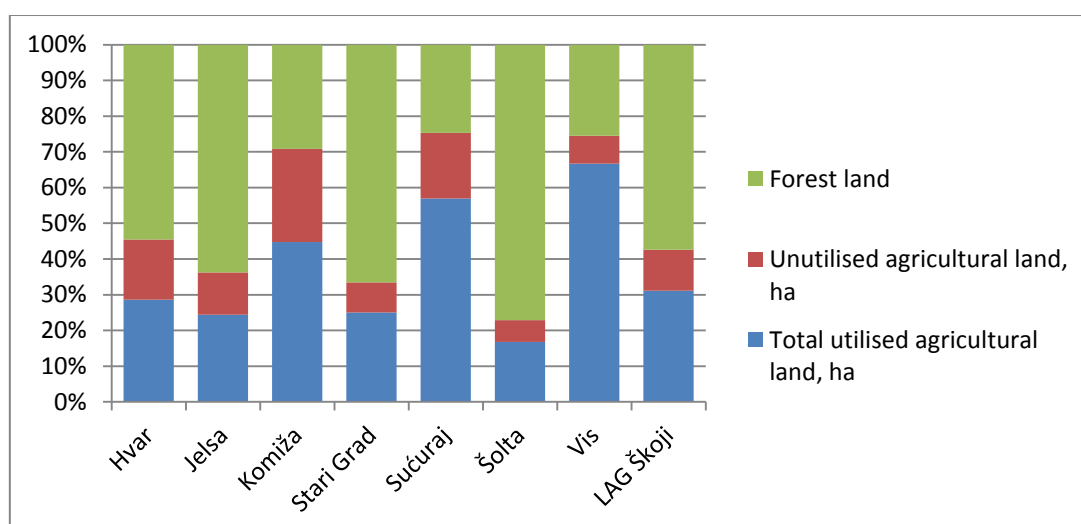
Source: Agricultural Census 2003, www.dzs.hr

Figure 19: Total utilized agricultural land and other land, LAG Škoji, 2003



Source: Croatian Bureau of Statistics, Agricultural Census 2003, www.dzs.hr

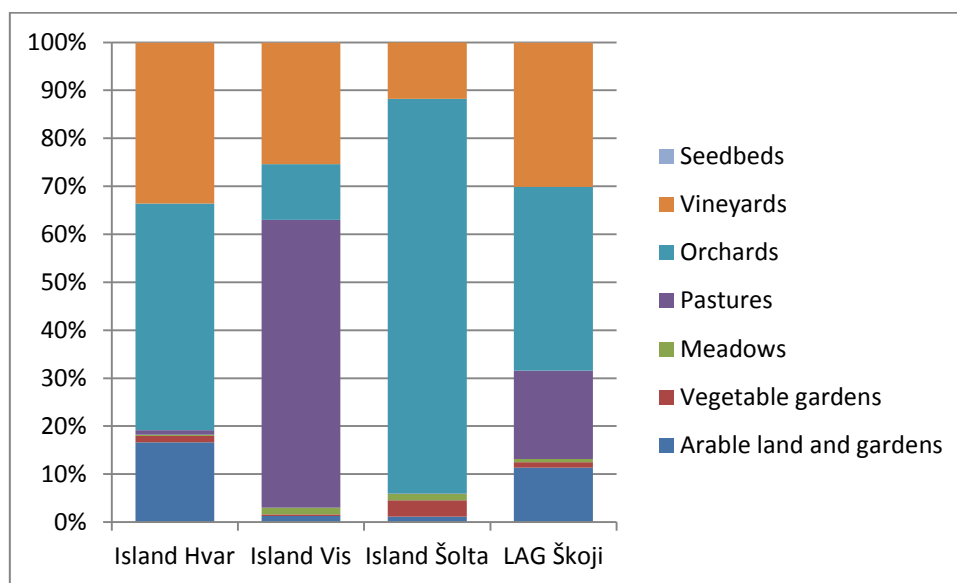
Figure 20: Share of total utilized, unutilized agricultural land and forest land, LAG Škoji, 2003



Source: Agricultural Census 2003, www.dzs.hr

Unfortunately, Agricultural Census 2003 is not fully reliable because there is no data before and after to compare with. Also, it was noticed that one number is disproportionately high. Pasture land in City of Vis, by the Census, was 400.2 ha, which is too overestimated compared to whole island of Hvar (14.6 ha) or just City of Komiža. In addition this observation does not match with the number of cattle registered in 2003 (Fig. 21). During history, islands were mostly under vineyards but by the Census, in 2003, only on island of Vis agricultural lands with vineyards were most common. On islands of Hvar and Šolta orchards had largest share of utilized agricultural land. Category of orchards includes olive groves, which can be observed on those islands. Small shares of citrus and other trees are also represented. Island of Hvar also have large share of vineyards and arable land and gardens. Pastures and meadows are shown in two separated categories. Very low percentage of meadows is result of limiting factors such as karst terrain, lack of water and precipitation, shallow soil, high temperatures and salinity of the coast.

Figure 21: Utilized agricultural land, by categories, islands and LAG Škoji, 2003



Source: Agricultural Census 2003, www.dzs.hr

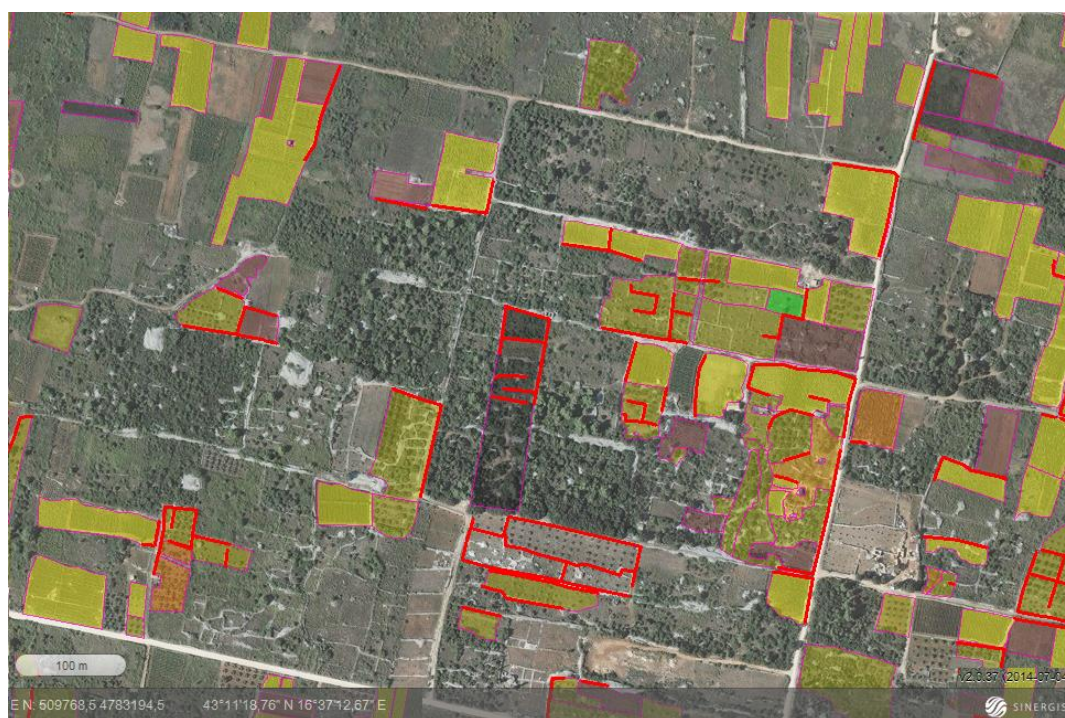
a] System of indentification of agricultural parcels and its use

ARKOD is the national system of identification of agricultural land parcels and its use in the Republic of Croatia. ARKOD has aim to provide farmers easier way of applying for support as well as their transparent use. ARKOD is actually upgraded Registry of farms, which the Agency for payments in agriculture, fisheries and rural development using for the allocation of support. Also, ARKOD is the integral part of the Integrated Administration and Control System (IACS), which Member States are using to allocate, to monitor and to control direct payments to farmers. Registration in ARKOD is free and obligatory for utilized land owners and it can be done in regional offices of the Paying Agency⁶⁴. Inventory of agricultural land is divided between estate possession status (cadastre) and ownership situation (Land Registry). Main problems of cadastre are old data (from Austro-Hungarian monarchy), different units of measurement, uncompleted data, technical equipment, lack of employee and some data are destroyed in wars. Expectation is to solve problems with ARKOD.

⁶⁴ ARKOD, sustav evidencije zemljišnih parcela u RH, <http://www.arkod.hr/onama/>

Figure 22 with part of Stari Grad Plain represented an example of ARKOD. Still, large share of land is not in Registry, as a confirmation of abandonment of agricultural land. Other reasons are that some parcels are smaller than 0.05 ha (which is one of requirements for ARKOD and support) and that all parcels and farmers are not registered. The Stari Grad Plain as most valuable agricultural land has large share of unregistered parcels, especially can be seen where maquis has been progressed. Also, one advantage of ARKOD is registry of characteristics of the landscape. Characteristics of the landscape are objects of agricultural land as result of natural or human activities such as groves of trees, individual tree, lines of trees, hedges, ponds, ditch, dry stone walls, piles and rocks. For Dalmatia and LAG Škoji this kind of registration is important, where dry stone walls and piles (Croatian - *gomila*) can be finally registered. On the figure, dry stone walls have been shown as red line and almost all registered parcels are registered as vineyards.

Figure 22: ARKOD browser in Croatia, example of Stari Grad Plain



Source: <http://preglednik.arkod.hr/ARKOD-Web/>, (November, 2014)

Largest problems in agriculture on the islands is small total ha of agricultural land and large the number of parcels. The island area is poor of arable land and the average land per capita is smaller than at Croatian level. From there, the need to keep arable land gives more attention. One of the reasons why are parcels small lays down in the fact of ownership relations because agricultural land on the islands is mainly privately owned. Solution is often sees in the consolidation of ownership structure and the family farms in general but it is process which needs time and takes several generations (if state does not intervene constraints) (Radinović, 2002).

b] Corine Land Cover

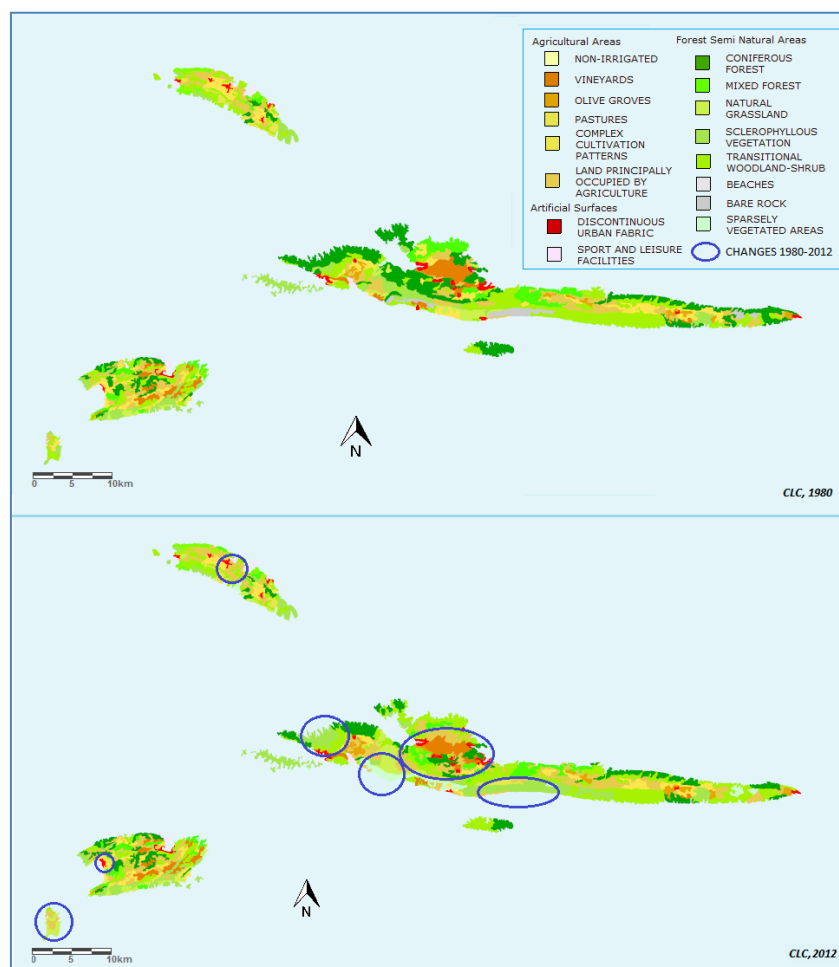
Corine (Coordination of information on the environment) is programme of European Union and it is working on many different environmental issues. Corine programme made digital database on the land use and it is important for planning the environmental policy, regional development and agriculture. Data are hierarchy grouped and level-one categories are: artificial surfaces, agricultural areas, forests and semi-natural areas, wetlands and water bodies. Croatia started work on Corine project in 2012. Within Corine in Croatia there are database for years 1980, 1990, 2000, 2006 and 2012 and database of change between years⁶⁵. Unfortunately, in case of this research area it is not relevant to use Corine as tool for detail analysis. For example, in 2012 complex cultivation patterns area on the islands of Vis covered almost 300 ha near Grohote settlement. In 1980, that area was almost 200 ha larger and in 30 years it reduced and that area is characterized as a land principally occupied by agriculture but partially covered with vegetation (Map 9). Field work in 2014 has shown true condition, when almost entire karst depression near largest settlement Grohote was abandoned and covered with invasive vegetation (Fig. 23). Corine still can give some directions to have picture of the largest spatial changes that have been happened between 1980 and 2012. Largest changes are shown in red circles on the map and it can be seen that island of Hvar has most changes. Changes mostly happened with coniferous forest, namely, due to deforestation and fires that occurred in last decades. Largest fires on the island of Hvar, according to interviewed people and articles, were in 2003. Island of Vis does not have significant changes, mostly due to its isolation as opposed to Hvar. There is large importance to start from the field and Corine can be additional tool in the survey.

The long anthropogenic impact of destroying vegetation has been intensified denudation and washing the thin soil layer, which is why in many places rocks are close to the surface. Such continuous negative impact on the area has been affected in his extreme barrenness, especially on convex parts of slopes along the coast. Decades ago in many parts of the islands (especially the southern coastal slopes) prevailed naked and half-covered karst. Recently, there is a reversible process due to abandonment of traditional agriculture. On the former terraces all there is significant succession of vegetation, which largely prevents erosion and washing away of the soil surface, which is certainly a positive element in the stabilisation of slopes and conservation of islands natural landscape (Krklec, 2012).

⁶⁵

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=home.showFile&rep=file&fil=LIFE02_TCY_CRO_015_LAYMAN.pdf

Map 9: Corine Land Cover. LAG Škoji, changes 1980 and 2012



Source: <http://corine.azo.hr/home/corine>

Figure 23: Island of Šolta, abandoned field, Grohote and Donje Selo, 2014



Source: author, September 2014

F. Agricultural biodiversity

LAG Škoji as a part of the Mediterranean has great and preserved overall biodiversity. The forests and maquis occupy large percentage of the area; natural forest cover has been cleared in the valleys and flysch area suitable for agricultural activities. On the islands is widespread holm oak (*Quercus ilex*), black (*Pinus nigra*) and Aleppo pine (*Pinus halepensis* as invasive species), ash tree (*Fraxinus excelsior*) and others. For long time, there was lack of knowledge about agricultural biodiversity Croatia. Latest projects have showed some movement in positive direction. For example, COAST⁶⁶ project made the research on traditional plants and domestic animals in the Dalmatia region. That project was introduced with grapevine and olives varieties, tradition cultivars of breeds, arable crops and vegetables and medicinal and aromatic plants (Ozimec *et al.*, 2009).

In the past fifty years new trends in agriculture came: abandonment of agricultural activities, mechanization, domination of monocultures and introduction of hybrids, which have replaced some traditional varieties and breeds. It all resulted with problems for agricultural biodiversity, which is not preserved, surveyed or protected in appropriate way. People must be aware that because of lack of agricultural land on the islands, market competitiveness cannot be achieved through intensive agriculture. The only way to the market is branding agricultural products. Olives and grapevine are the most common cultivars on islands Hvar, Šolta and Vis. Olives are dominant cultivated type of fruit in terms of volume and importance for local economy. There is large percentage of households (93% of Dalmatian islands households), which have olives as additional working or as their main activity. In Dalmatia, there are 37 recognized cultivars and of that number, one cultivar is lost and 12 cultivars are endangered. In the LAG area, most common varieties are *Oblica*, *Levantinka* and *Lastovka*. According to Agricultural census 2003, on the LAG Škoji area, there were more than 160.000 olive trees (Stari Grad, Jelsa and Hvar had the most). Problem of that Census is that it does not show number of olive trees per household so data lake that cannot be evaluated in full meaning of that word. Olive groves have tradition and economic, cultural and historical importance for local people, landscape and habitat and because of that, it needs to be protected and stop abandonment. Specific soil types (sparing and rocky soil), environmental factors, climate, and specific location for the cultivation of vine grape such as slope gradient made grape and wine production economic very important agricultural activity during history. Also, those factors plus island isolation and maritime connection with rest of the Mediterranean are reason for development of large number of grape varieties (some of them are local varieties specific only for narrow, isolated areas). Cultivation of grape on islands has many problems like small parcels size and lack of market competitiveness and because of that abandonment of vineyards. Studies (especially Faculty of Agriculture ant University of Zagreb and the Institute for Adriatic Crops and Karst Reclamation in Split) showed that today there are 82 varieties in Dalmatia. On the islands most dominating verities are *Bogdamuša*, *Plavac mali*, *Prč*, *Kuč* and *Darnekuša* on Hvar, *Vugava* (Bugava) on Vis and *Dobričić* on Šolta island (Ozimec *et al.*, 2009).

Most significant cultivated fruits except olive and grape are citrus (cultivation dates from 15th century in area of southern Dalmatia), fig, almond, pomegranate (mostly in house yards) and carob. Total number of fruit trees varieties in Dalmatia is around 130 including olives (fig 29 and pomegranate 20). Largest problem of fruit cultivations are small parcels and lack of irrigation systems. Carob is cultivated only at specific locations on LAG area: Komiža (few locations) and island of Šolta near settlement Rogač (Ozimec *et al.*, 2009). It was grown on barren and uncultivated soil since Greek colonization. Through history, carob fruit is sold outside the island of Vis and today's situation is the

⁶⁶ COAST (Conservation and Sustainable Use of Biodiversity in the Dalmatian Coast through Greening Coastal Development) project is developed with the support of the UN Development Programme (UNDP) and in cooperation with the Ministry for Environment and Nature Protection, as well as other relevant ministries, 4 Dalmatian counties and numerous local NGOs, firms and individuals. <http://www.undp.hr/show.jsp?page=57734>

more difficult due the unorganized market and decrease number of ancient trees because of the spread of the construction zone of the City of Komiža.

Commercial production of vegetables on islands is no longer represented as it was during recent history when the production had significant value (eg. production of lettuce in Komiža). In that kind of production, biodiversity is strongly reduced with usage of not traditional hybrids and varieties. Traditional varieties of vegetables are mostly represented in house yard and small gardens. The largest problem for traditional varieties and its seeds is depopulation and because of that abandonment of gardens. Islands were self-sufficient during history. They also had arable crop production (wheat, corn, potato etc.) for production of secondary products (flour, oil, bread etc.) but after better connection and communication with coast and later with intensive wine-making it mostly disappeared. With loosing of one production as arable crops, biodiversity loose arable cultures and corresponding plants, animals and fungi (Ozimec *et al.*, 2009).

Islands are rich with high quality of medicinal and aromatic plants, spices, honey plants, ornamental and wild edible plants but only small part has been cultivated during history. Because of natural predisposition, some plants on islands have more quality than plants on the coast (eg. rosemary on the Vis and sage on rocky karst). Best example of high cultivated plant is lavender on island of the Hvar and picking of rosemary on island of the Vis. Wild plants are in danger because of inappropriate and illegal picking (eg. immortelle picking on islands), overgrowing of invasive cultures and fires (example of lavender on Hvar). Now, it is rare to have production of those plants for secondary (eteric oils or honey) and tertiary products (medicinal, cosmetics or edible products). Also, there is no systematic list, description of the status of their population, neither level of endangerment nor description of traditional usage of those cultivars in Croatia. Because of that, traditional cultivars can disappear. There is high value of some plants such as rosemary and lavender. Except the fact that they can be use as medicinal and aromatic herbs, they are also used as spices and in the production of honey. In a term of landscape characteristics, they have also high value. Most important in the term of influence on the general biodiversity are: sage (*Salvia officinalis*), lavender Budrovka (*Lavandula hybrid*), rosemary (*Rosmarinus officinalis*), winter savory (*Satureja montana*), century plant (*Agave americana*), myrte (*Myrtus communis*) and strawberry tree (*Arbutus unedo*) (Ozimec *et al.*, 2009).

In Dalmatia, domestic animals were very important in the history of agriculture. Even name *Dalmatia* comes from Illyrian word *dalma* (*delma*), which means sheep. Number of livestock is not comparable now to ancient time. The most important breeds in LAG Škoji area are sheep, goats and donkeys. For cow breeding, environmental factors were inappropriate. Abandon of breeding activities has therefore the devastation of landscape, habitats and biodiversity is in progress. On the abandon land there is succession of underbrush (maquis), which can lead to the fires (Ozimec *et al.*, 2009). There is no database of herds in Croatia. Last available data are from 2003 and it presents households per size of cattle (Table 32).

Table 32: Number of households with cattle and per number of cattle, LAG Škoji, 2003

	Number of households with sheep or goats	with sheeps	1-5 goats	1-5 sheep	6-10 goats	6-10 sheep	11-20 goats	11-20 sheep	21-50 goats	21-50 sheep	50 < goats	50 < sheep
Hvar	12	2	8	.	.	.	.	1	4	1	.	.
Jelsa	102	16	93	14	2	1	5	1	2	.	.	.
Komiža	16	9	13	2	.	2	1	2	1	2	1	1
Stari Grad	101	2	94	.	6	.	.	.	1	2	.	.
Sućuraj	25	0	25	.	.	.	.	.	.	.	.	.
Šolta	17	2	16	1	1	.	.	1	.	.	.	.
Vis	7	4	4	.	2	.	.	1	1	2	.	1
LAG Škoji	279	33	252	16	11	3	6	5	9	7	1	2

Source: Agricultural Census 2003, www.dzs.hr

Fieldwork and interviews with local people in August and September of 2014 gave these devastating results. Islands are real potential for breeding, especially after abandonment of agricultural land and overgrowing with invasive species but on islands is registered only one large cattle for each island, Vis, Hvar and Šolta. Smaller cattle with fewer than 10 goats or sheep are mostly around households in stalls. The practice of grazing under the olive trees is not largely present. One breeder of goat from Stari Grad has 35 alpine goats because domestic goats do not give enough milk. He has production of fresh cheese and plan is to build small dairy, to increase number of goats and take goats to open pastures. On island of Vis, there is one breeder with about 50 sheep and he produces mostly cheese and one part meat. Market for meat and cheese are mostly restaurants and local people. One family on Šolta has 20 sheep, 2 cows and 1 goat on 2000 m² of their own land. They agreed with owners of neighbours abandoned parcels so they are free take sheep to grazing all over karst field (only 4-5 parcels are with vineyards). Their priorities are solar panels and water supply, which they do not have on their farm.

The olive groves, vineyards, meadows, pastures, fields, gardens and original varieties and breeds are crucial for the development of the landscape and biodiversity. Extremely important for landscapes and biodiversity are Dalmatian karst pastures for grazing cattle. By creating and maintaining grasslands, survive numerous fungi, plants and animals. Today grasslands disappear due to natural succession or overgrowing, or the construction and urbanization. The grazing prevents succession and maintains grassland habitats. With disappearance of livestock, maquis expands, which can tend the spread of fire and the disappearance of many plant species (Ozimec *et al.*, 2009). On islands, there is no wolves, but on the coast and hinterland of Dalmatia they are largest predators and without grazing that animals cannot survive. It is important to protect that extremely large number of varieties of cultivated plants and breeds of domestic animals and their habitat and land.

G. Environmental protection and NATURA 2000

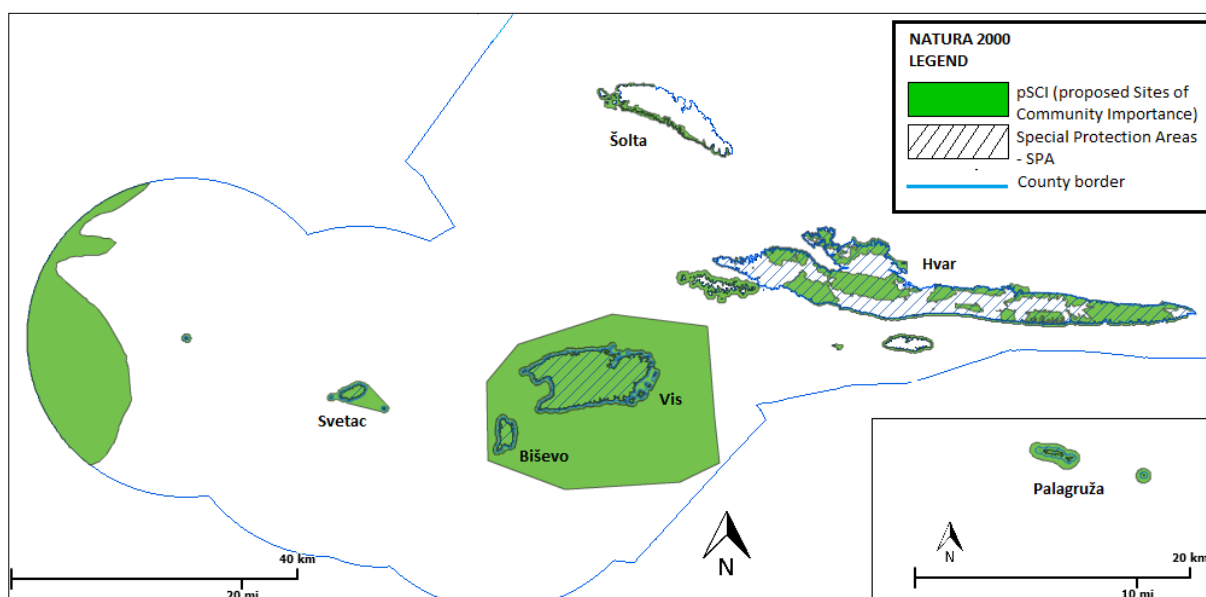
Outstanding feature of one area represents biodiversity and natural heritage. In Croatia, according to Nature Protection Act there are nine categories of nature protection: strict nature reserves (2), national parks (8), nature parks (11), special nature reserve, regional parks (2), nature monuments, important landscapes, forest parks and park architecture monuments. In LAG Škoji, managed by *Public institution for management of protected natural values* in the Split-Dalmatia County, there are 8 nature monuments, and 4 important landscapes: Zečevo, Ravnik, Šćedro, Pakleni otoci. For all action and projects inside those protected area, project holder needs to get approval.

Natura 2000 is a European network of important ecological sites and it is the largest network of protected areas in the world. It is a part of the European Union nature and biodiversity policy and it is build of two directives: the Birds Directive (2009/147/EC) and the Habitats Directive (EEC/92/43).

EU Member States are required to designate Special Protection Areas (SPAs) to protect bird and migratory bird species and to propose Sites of Community Importance (SCIs) for habitat-types. They further have to designate them as Special Areas of Conservation (SACs). Finally, SPAs and SACs form the Natura 2000 network. The most important fact about Natura 2000 is that human activities are not excluded in protected area⁶⁷.

Natura 2000 in Croatia started within Phare project *Institutional building and implementation of NATURA 2000 in Croatia* and this project resulted with proposal of sites. The Proposal is based on scientific data and expert evaluation of sites by The State Institute for Nature Protection and it is waiting for EC to be accepted. In the Natura 2000 proposition, 29.31% of total Croatian surface is included (36.97% of the land and 15.36% of the sea area in Croatia). Parallel with waiting, Croatia is in stage of the establishment of monitoring system, system of subsidies and finding practical solutions for the long-term management of sites in close cooperation with stakeholders. Even before accessing EU, Croatia has implemented mechanisms for protecting habitats⁶⁸ like National ecological Network and Nature impact assessment within its Nature protection act. Natura 2000 in Croatia will be administrated by the county administrative offices if the some areas are not protected in the category of strict reserve, national park and nature park⁶⁹. For LAG Škoji area, it is *Dalmatian Nature* - a public institution for the management of protected natural values in the Split-Dalmatia County. Almost whole LAG area is included in Natura 2000 network. Islands Hvar and Vis are with whole area included in Special Protection Areas (SPA) while on island Šolta, there is no SPA, just proposed Sites of Community Importance (pSCI) on the southwest coast (Map 10).

Map 10: Natura 2000 network in LAG Škoji area



Source: <http://natura2000.dzsp.hr/natura/>

⁶⁷ http://bd.eionet.europa.eu/activities/Natura_2000/index_html

⁶⁸ Ordinance on establishment of national ecological network, NN 109/07, Ordinance on nature impact assessment, NN118/09), Legislation in the field of environmental protection - Regulation on environmental impact assessment EIA (NN 64/08) and Regulation on strategic environmental assessment of plans and programmes (NN 64/08), www.natura2000.hr

⁶⁹ <http://www.natura2000.hr/Home.aspx>

Chapter IV. Concluding remarks

Contemporary agricultural and rural policies realised importance to deal with main agricultural issues such as climate change, environmental pollution and the use of genetic modified organisms in food production. European Union and Common Agricultural Policy are trying to go in the direction which agriculture is in the service of environment and the farmer in the service of land and rural areas. Farmer came at the centre of interest and closely connected with society.

There are several main limiting factors for agricultural development in the Adriatic Croatia and especially on the islands, like it is case with islands within LAG *Škoji*. Limiting factors such as lack of arable land and water, poor demographic trends, unsatisfied structures of family farms and agricultural land, because of its size and fragmentation, seriously slow down process of rural development. Also, institutional organization makes constraints, cadastre system is not relevant yet and bureaucracy is still slow and complicated and because of that, some potential beneficiaries quit easily. State legislatures still do not comply with European norms and standards. Also, pathways and abandoned agricultural landscape are closing by invasive species. However, not everything is that negative and these areas have many development advantages like extremely favourable climate, preserved authentic landscape and the possibility of organic farming. Agricultural products can be and must be special, typical brands and those products can always find their way to the market, and development of tourism in that preserved area of environmental and cultural heritage can be encouragement for the farmers. In these extensive agricultural areas, high quality must be above quantity and products must be evaluated among others through tourism.

In the selection of measures for Rural Development Programme in the period of 2014-2020, Croatia tried to achieve harmony of the measures focused in the direction of strengthening the competitiveness of products, protection of farmers' income and to provide stable and adequate supply of food. These measures will try to improve rural areas in different aspects but this work is focused on the actions that are dealing with agri-environment which still have not found place in priorities of rural development. The considerable emphasis must be on the potential of agriculture in the Mediterranean because of specific needs of production in the agri-environmental conditions. Through agri-environmental actions, there is an opportunity to start and preserve landscape. Agriculture is an activity that has created structural elements important for the identity of the French and Croatian researched areas. In Croatian case of LAG *Škoji*, structural elements appear in the fields and on slopes that characterise terraces of different samples. Terraces as traditional part of the cultural landscape in Mediterranean, for long time were covered with vineyards and olive groves until due to high costs of cultivation and maintenance became abandoned. Also, with actions for maintaining production in extensive olive groves and vineyards prevent their overgrowth, degradation and reduction of landscape characteristics. Extensive olive groves and vineyards represent an important habitat for migratory bird species and therefore create a high nature value in biodiversity and landscape.

Agro-biodiversity on the *saltus* depends on agricultural activities and on the observed areas, numerous habitats and protected species was found. Sites within ecological network Natura 2000 are confirmation of that fact. In Mediterranean, grassland areas were formed as a result of human activity, forest areas were cleared and the grasslands were maintained by mowing and grazing. In Croatian Mediterranean, there was developed extensive sheep breeding and due to abandonment of that practice a natural process of succession of vegetation occurred. One of the EU operation and sub-measures goes in that direction of supporting farmers who maintain HNV grasslands and those who contribute to the conservation of agro-biodiversity and prevent further loss of habitat. Sheep and goats production along the Adriatic Croatia is based on the poor vegetation of natural pastures and karst rocks. Sheep and goats breeding can maintain pastures and prevent fires which became more frequent under pressure of tourism. Therefore, breeding in these areas has economic and environmental value and

wider social importance. In LAG *Škoji*, currently there is small number of herd but area has large potential to introduce again sheep and goats.

Observed areas in France and Croatia have long agricultural tradition and because of that, specific cultural landscape such as Mediterranean agro-pastoral UNESCO site and Adriatic Croatian cultural landscapes shaped by pastoral activities and by extensive olive, vine grape and lavender cultivation. Stari Grad Plain UNESCO, present high valued cultural landscape and it is great base for development direction that LAG *Škoji* can follow. All these sites need tools to maintain pastoral and other agricultural activities such as organic farming, medicinal and aromatic plants cultivation and wild picking. Common Agricultural Policy, Rural Development as second pillar and finally LEADER with its bottom-up approach through LAGs can offer some solutions and actually start actions in direction of sustainable rural development. LEADER/CLLD approach and LAGs as new tool in Croatia still need some time to adopt and to coordinate activities, but cooperation measures and gathering of knowledge from other Member State and France in this case can accelerate that process. These HNV and preserved areas in France and Croatia can have decentralized cooperation through institutions, universities and finally through LAGs and other networks. The possibility of cooperation is in this case given through EAFRD and it should be used properly.

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Annexes

Annex I: Forecasted repartition of measures within EAFRD connected with agri-environment in region Midi-Pyrénées, 2007-2013

Axis	Measure	Goal	Sub-measure	Description	EAFRD	% out of total EAFRD
Axis 1	121	Modernisation of farms	121-B	Vegetation plan for environment	8.320.000	4.5
Axis 2	214	Agri-environmental payments	214-C	Polycultural breeding rummage systems with low inputs	1.600.000	0.9
			214-D	Conversion to organic agriculture	6.140.000	3.3
			214-F	Protection of endangered species	370.000	0.2
			214-H	Improvement of pollinator potential of domestic bees to preserve biodiversity.	730.000	0.4
			214-I1	Territorialized Natura 2000 EAM	7.910.000	4.3
			214-I2	Territorialized Water framework directive AEM	11.000.000	5.9
			214-I3	AEM territorialized other issues	1.000.000	0.5
	216	Support to non productive investments (agricultural)	216	Support to non productive investments (agricultural)	110.000	0.1
	226	Rebuilding forest potential and supporting preventive measures	226-B	Reconstitution of lands in mountains	740.000	0.4
			226-C	Preventing forest from fires	490.000	0.3
	227	Support to nonproductive investments (forest)	227-B	Non productive Investment in Forest milieu – Natura 2000	450.000	0.2
Axis 3	323	Conservation and enhancing rural patrimony	323-A	Promotional documents for Natura2000 sites	4.630.000	2.5

			323-B	Investments related to maintaining and renovation of Natura 2000 sites (out of forest milieu and agricultural production)	1.180.000	0.6
			323-C	Integrated actions in favor of pastoralism	8.200.000	4.4
			323-D	Conservation and enhancing of natural patrimony	0	0
Total environmental issues contribution					52.870.000	28.575.289
Axis 2					30.540.000	16.506.323
Total EAFRD contribution					185.020.000	100

Source: http://agriculture.gouv.fr/IMG/pdf/Midi-Pyrenees-DRDRvalide080328-Tome1_cle45fe5d.pdf

Annex II: Final EAFRD contribution to environmental measures in region

Midi-Pyrénées, 2007-2013

Axis	Measure	Goal	Sub-measure	Description	EAFRD	% out of total EAFRD
Axis 1	121	Modernisation of farms	121-B	Vegetation plan for environment	2.459.244	0.3
Axis 2 National-basis	211	Maintaining lands by agricultural activities	211	Compensation to handicap areas in mountains	413.392.637	51.3
	214	Agri-environmental payments	214-A	Herbage system	119.100.842	14.8
			214-B	Rotation of cultivations, diversification	7.192.696	0.9
	226-A				5.301	0.0
Axis 2	214	Agri-environmental payments	214-C	Polycultural-breeding rummage systems with low inputs	0	0.0
			214-D	Conversion to organic agriculture	7.899.713	1.0
			214-F	Protection of endangered species	312.892	0.0
			214-H	Improvement of pollinator potential of domestic bees to preserve biodiversity.	492.514	0.1
			214-I1	Territorialized Natura 2000 AEM	5.121.754	0.6

			214-I2	Territorialized Water framework directive AEM	4.106.008	0.5
			214-I3	AEM territorialized other issues	1.348.579	0.2
	216	Support to non productive investments (agricultural)	216	Support to non productive investments (agricultural)	702.228	0.1
	221				24.763	0.0
	222				140.551	0.0
	226	Rebuilding forest potential and supporting preventive measures	226-B	Reconstitution of lands in mountains	656.476	0.1
			226-C	Preventing forest from fires	1.068.834	0.1
	227	Support to nonproductive investments (forest)	227-B	Non productive Investment in Forest milieu - Natura2000	303.721	0.0
Axis 3	323	Conservation and enhancing rural patrimony	323-A	Promotional documents for Natura2000 sites	5.105.677	0.6
			323-B	Investments related to maintaining and renovation of Natura 2000 sites (out of forest milieu and agricultural production)	586.768	0.1
			323-C	integrated actions in favor of pastoralism	9.120.513	1.1
			323-D	Conservation and enhancing of natural patrimony	83.681	0.0
Total environmental issues contribution					579.225.392	71.9
Axis 2 from regional basis					22.178.033	2.8
Axis 2 from national basis and regional					539.691.476	67.0
Total EAFRD contribution					805.424.299	100

Source: <http://www.europe-en-midipyrenees.eu/docs-reference-fonds-europeens/#feader>

Annex III: Final EAFRD contribution to environmental measures in region Languedoc-Roussillon, 2007-2013

Axis	Measure	Goal	Sub-measure	Details	EAFRD	% out of total EAFRD
Axis 1	121	Modernization of farms	121-B	Vegetation plan for environment	4.730.864	1.2
Axis 2 National-basis	211	Maintaining lands by agricultural activities	211	Compensation to handicap areas in mountains	137.500.000	35.2
	212		212	Compensation to handicap areas (not in mountains)		0.0
	214	Agri-environmental payments	214-A	Herbage system	59.500.000	15.2
			214-B	Rotation of cultivations, diversification	200.000	0.1
	214	Agri-environmental payments	214-C	Polycultural-breeding rummage systems with low inputs	427.738	0.1
			214-D	Conversion to organic agriculture	7.305.821	1.9
			214-F	Protection of endangered species	99.271	0.0
			214-H	Improvement of pollinator potential of domestic bees to preserve biodiversity.	1.951.161	0.5
			214-I1	Territorialized Natura2000 EAM	5.981.834	1.5
			214-I2	Territorialized Water framework directive AEM	7.049.537	1.8
			214-I3	AEM territorialized other issues	3.086.130	0.8
Axis 2	216	Support to non productive investments (agricultural)	216	Support to non productive investments (agricultural)	1.517.363	0.4
	226		226-B	Reconstitution of lands in mountains	143.065	0.0
			226-C	Preventing forest from fires	5.010.418	1.3
	227		227-B	Non productive investments in forest milieu - Natura2000	194.003	0.0
	323	Conservation and enhancing rural patrimony	323-A	Promotional documents for Natura2000 sites	4.809.580	1.2
			323-B	Investments related to maintaining and renovation of Natura 2000 sites (out of forest milieu and agricultural production)	1.004.648	0.3

			323-C	Integrated actions in favour of pastoralism	3.763.045	1.0
			323-D	Conservation and enhancing of natural patrimony	69.598	0.0
Total environmental issues contribution					244.344.077	62.6
Axis 2 from regional basis					32.766.342	8.4
Axis 2 from regional and nationl basis					229.966.342	58.9
Total EAFRD contribution					390.477.172	100.0

Source: <http://www.languedoc-roussillon.eu/fonds/feader.php>

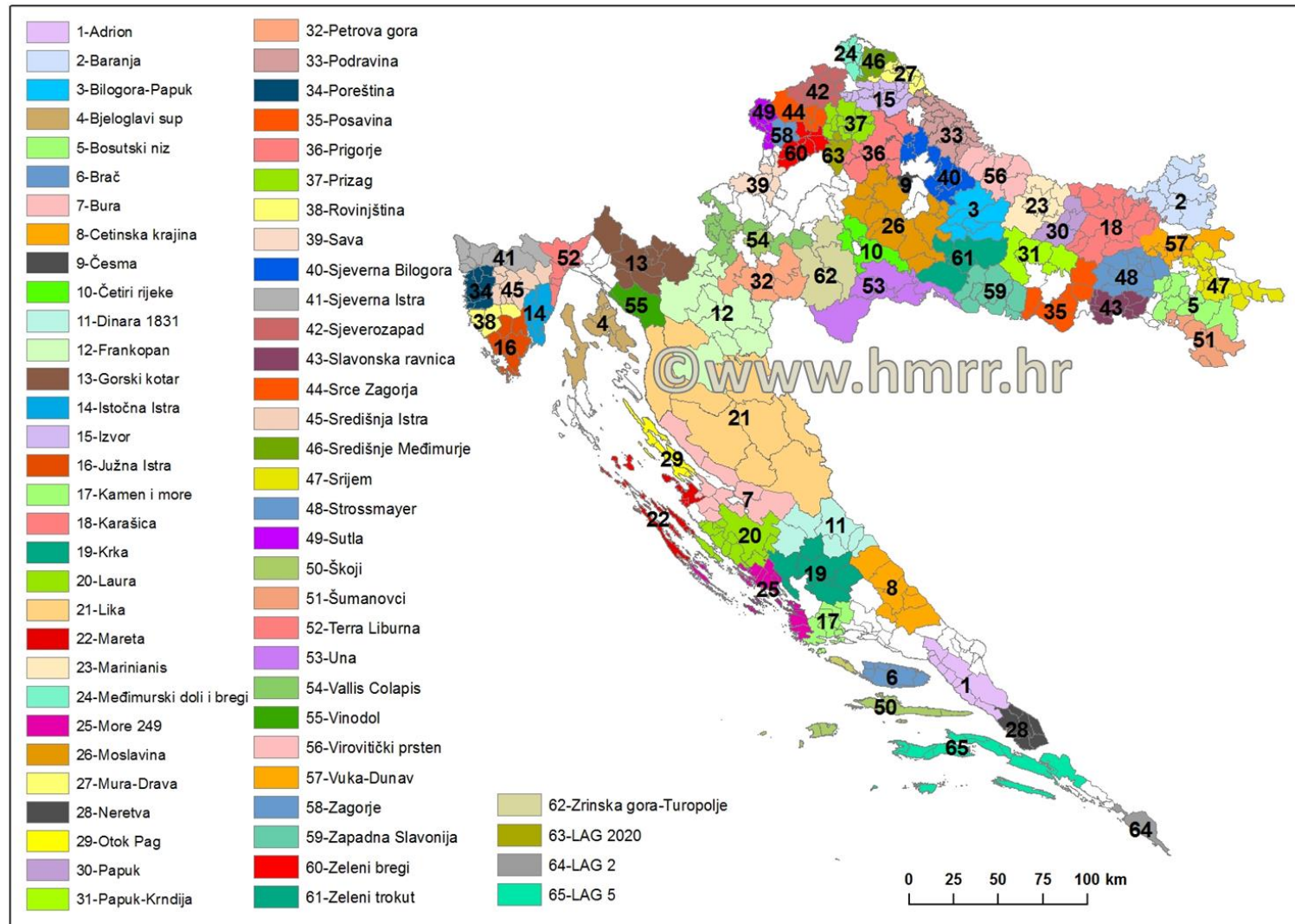
Annex IV. Available measures for LEADER Axis for 2007-2013

LEADER	Measure	Goal	Level of implementation	Sub.measure	Details
Axis 2 = 412	214	Agri-environmental payments	Regional basis	214-C	Polycultural-breeding rummage systems with low inputs
				214-D	Conversion to organic agriculture
				214-E	Maintaining organic agriculture
				214-F	Protection of endangered species
				214-G	Preservation of vegetal species under disappearance jeopardy
				214-H	Improvement of pollinator potential of domestic bees to preserve biodiversity.
				(214-I)	Territorialized AEM
				214-I1	Territorialized Natura2000 EAM
				214-I2	Territorialized Water framework directive AEM
				214-I3	AEM territorialized other issues
	216	Support to non productive investments (agricultural)	216	Support to non productive investments (agricultural)	
	221	First wooding of agricultural lands	221	First wooding of agricultural lands	
	226	Rebuilding forest potential and supporting preventive measures	National basis	226-A	Support to reconstitue damaged forest populations due to natural catastrophes.
			Regional basis	226-B	Reconstitution of lands in mountains
	226-C	Preventing forest from fires			
	227	Support to non productive investments (forest)		227-A	Forest investments related to forest protecting from natural hazards
			227-B	Non productive investments in forest milieu	
Axis 3 = 413	311	Diversification towards non agricultural activities	Regional basis	311	Diversification towards non agricultural activities

	312	support to creat and develop small businesses		312	Support to creat and develop small businesses
	313	promotion of touristic activities		313	Promotion of touristic activities
	321	services to rural economy and population		321	Services to rural economy and population
	322	renovation and development of villages		322	Renovation and development of villages
	323	conservationand enhancing rural patrimony		323-A	Promotional documents for Natura2000 sites
				323-B	Investistments related to maintaining and renovation of Natura 2000 sites (out of forest milieu and agricultural production)
				323-C	Integrated actions in favour of pastoralism
				323-D	Conservation and enhancing of natural patrimony
				323-E	Conservation and enhancing of cultural patrimony
	331	training and information of economic actors		331	Training and information
	341	acquisition of skills, animation to create and implement strategies for local development		341-A	SLD for forest/wood sector
				341-B	SLD out of forest/wood sector

Source: <http://www.europe-en-midipyrenees.eu/docs-reference-fonds-europeens/#feader>, <http://www.languedoc-roussillon.eu/fonds/feader.php>

Annex V. Croatian LAGs, status December 2014



Source: http://www.hmrr.hr/media/4564/lag-ovi__watermark.png