Project co-financed by the European Regional Development Fund

# MED Greenhouses
# "Green Growth through the capitalization of innovative Greenhouses"

*Joint report of available financial channels for eco-innovative technologies*

**University of Thessaly**

Project Details:

Programme: **Interreg MED 2014-2020**

Priority Axis: **1. Promoting Mediterranean innovation capacities to develop smart and sustainable growth**

Objective: **1.1. To increase transnational activity of innovative clusters and networks of key sectors of the MED area**

Project Title: **Green Growth through the capitalization of innovative Greenhouses**

Project Acronym: **MED Greenhouses**

Reference No: **3082**

Lead Partner: **University of Thessaly**

Total Budget: **1,171,400 €**

Time Frame: **01/02/2018 - 31.12.2019**

Deliverable Details

WP: 3. Capitalising

Activity: 3.1. State of Play in Policies, Financing, Technologies & Stakeholders

Deliverable Title: 3.1.3. Joint report of available financial channels for eco-innovative technologies

Responsible Partner: LP. University of Thessaly

Involved Partners: All

Date & Place of delivery: 10-2018

## Contents

# 1. Introduction

The overall objective of the "MED Greenhouses" project is to improve eco-innovation capacities of public & private actors in the greenhouse/agriculture sector, through stronger transnational cooperation, knowledge transfer and better collaborative networks. The main beneficiaries will be Greenhouse Farmers, Businesses specialized in Agro-food and Greenhouse industry, Policy Makers - Unions of Agricultural Cooperatives, Research &Technology Institutes, etc.

WP3 "Capitalising", aims at improving the existing innovative framework conditions in the MED area, providing tailored recommendations to stakeholders and favouring eco-innovative investments in the agricultural sector, and ii) creating synergies and cooperation mechanisms strengthening innovative clusters and networks.

Activity 3.1 aims at i) systematizing existing knowledge and presenting the state of playon technologies of innovative greenhouses in the partners' territories, ii) developing a database of Stakeholders and beneficiaries, ***iii) identifying available financial channels for eco-innovative technologies***, and iv) reporting present policies/frameworks. Through this activity, the partners will be able to identify the obstacles and the existed bottlenecks in their regions and design tailored policy recommendations for the establishment of innovative (geothermal) greenhouses.

Deliverable 3.1.3. aims at identifying financial schemes for eco-innovative investments (sectoral programmes, PPP's, Business Angels, etc). The schemes will be identified and presented in every involved region/country and a joint report will be elaborated by PP1-University of Thessaly.

# 2. State of play in the partner region

## *2.1 Description of the situation regarding financing of eco-innovation*

This section presents existing financial tools/channels that can be used for eco-innovation financing in the agricultural regions of partners.

### *2.1.1 Region of Berat, Albania*

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| **% GDP at country level for investments on eco-innovation** | The percentage of GDP at country level for investments on eco-innovation is not available so far. However, the government has planned to introduce some supporting schemes for the use of renewable energies for heating and cooling. It is reviewing the law on RES to add a provision that would finance the projects for heating and cooling, which use mainly biomass in the sector of agriculture. The financing is expected to be made through the grants from the RES fund set up by the government. The grants will reach up to 30% of the total cost of project investment. Ministry of Energy and Industry in corporation with the Ministry of Agriculture, Rural Development and Water Administration will identify the most suitable projects based on their financial realization and the influence to fulfill the objective of RES in the sector of agriculture (National Action Plan for Renewable Energy Resources in Albania). Regarding the total investment for each of the aforementioned groups, the analysis shows that total demand for investment is EUR 2 471 million and the share of investment required for small HPPs is about 785 million Euros. Both these values represent significant amounts for the Albanian economy in general and its banking sector in particular, making it a very attractive sector. |
| **% Structural Funds at national level for eco-innovation** | This information is not available. |
| **Which sector is the priority of the country for eco-innovation (Industry,** | Albania ranks 40 out of 180 countries in the Environmental Performance Index (Wendling, Z. A. et al 2018). The EPI is a measurement of environmental trends and progress produced jointly by Yale University and Columbia University in collaboration with the World Economic Forum. It is based on 24 |

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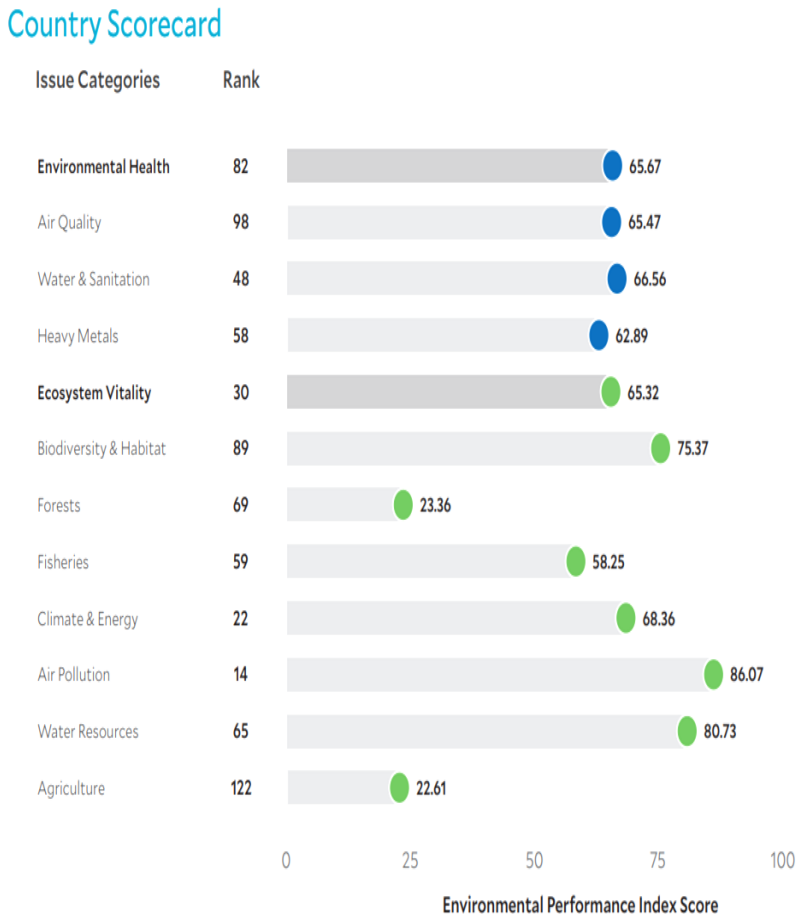
| **Agriculture, Public buildings, Transport, etc).** | performance indicators across ten issue categories covering environmental health and ecosystem vitality. From the figure below it is clear that one of the sectors that have the highest rank is "climate and energy". The agricultural sector lags behind because of the massive pesticide usage due to the equipment backwardness.<br>  <br><br>The government will boost the growth of energy production with the aim to increase the diversification of renewable resources from ecological and environmentally friendly alternatives in order to ensure a more sustainable development. The diversification of resources for renewable energy production is of paramount importance, as it has been pointed out in the National Action Plan for Renewable Energy Resources 2015-2020. In fact, the country has relied so far on one main source, producing renewable energy from hydropower plants. However, many other renewable resources have been identified as strategic to increase the amount of renewable energy produced by the country, such as the production of bio-diesel |

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| | from agricultural waste materials or the exploitation of the numerous untapped geothermal springs around the country. Albeit the geothermal power has been identified as a strategic source of energy, any specific provision has been adopted so far by the law to exploit the potential of those springs.<br>One of the strategies pursued in order to reach higher levels of sustainable energy production is the implementation of new net energy measurement schemes from solar and wind power plants for all self-producers, family customers or businesses. Hence, those investments in renewable energies not only will promote the production at all level but also in different economic sectors. The beneficiaries of these investments are individuals, firms and all the self-producers of renewable energies that operate in the market, from agricultural to industrial sectors. The expected investments in power generation plants from solar sources are around 20 billion leks, where up to 2020 will be installed about 50 MW by regulated tariffs and wind energy sources, investments expected to be approximately 8 billion, up to the year 2020 will be installed 30 MW with regulated tariff. As for the new water resources, the Government will keep pace of the growth of these resources, creating a favorable climate investment for them, with an expectation for future private investments of about 53.2 billion, with a capacity of about 300 MW installed (PROGRAMI QEVERISËS 2017-2021).<br>  <br><br>Finally, according with the Implementation Report the renewable energy sector in Albania is well advanced, as well as the environment sector. The energy efficiency sector lags behind the aforementioned sectors. |
| **%** **Structural** | % of ROP financing for eco-innovation: **n/a** |

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| **Funds at regional level for eco-innovation** | |
| **Which sector is the priority of the region for eco-innovation (Industry, Agriculture, Public buildings, Transport, etc).** . | n/a |
| **Which are the Beneficiaries of eco-innovation investments (SMEs, big enterprises, farmers, etc)** | n/a |
| **Please provide some examples of important investments on eco-innovation in agriculture in your region and explain how they were financed** | Sustainable biomass heated greenhouses have been established in Lushnjë in Albania. The project is working to popularize the production of bioenergy agro-industries in Albania. It offers financial and technical assistance to small and medium enterprises to increase the use of the technology. Traditional boilers fueled by diesel or other fossil energies have been replaced by modern boilers that run on biomass, in order to heat greenhouses and create an indoor microclimate suitable for crops cultivations. New boilers are fueled by burning the dried solid remains of olives that are left over after pressing for oil. Actually 10 enterprises applied for the UNIDO support to install modern biomass boilers. However the pilot project hopes to involve at least 15 small and medium enterprises. Many benefits derive from this new technology usage. In fact the olive pomace is cheaper than the diesel, the cost is around 100€ per tonne and it can be easily collected in the surrounding area of greenhouses. Moreover the price of the pomace is more stable on the market giving to farmers the chance to plan ahead. Hence, the innovative boilers are more sustainable and cost-effective than the traditional heating systems, in terms of environmental protection and equipment cost reduction. |

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| | Furthermore, after the installation of the biomass fueled boilers in greenhouses farmers can grow plants twice as faster as before. As a result, after the installation of this new technology it is now possible to produce three harvests per year rather than two. Besides, the yield has seen an increase of 40% with a positive repercussion on the turnover. In addition, the high quality vegetables produced in the biomass heated greenhouses are exported and branded as organic because they don't need to be frozen. Therefore, they can be sold at a higher price in the market. The project for the installation of sustainable biomass boilers to heat greenhouses has been carried with the United Nations Industrial Development Organization (UNIDO) in partnership with Global Environmental Facility. The project has been funded with a grant provided by UNIDO and a loan provided by the project partner bank ProCredit. |
| **Are innovative greenhouses amongst the investments financed in your region? If yes, please provide information about major investments** | Innovative greenhouses are amongst the investments financed in the region. In particular the following 2 cases have been identified in Albania:<br><br>Sustainable biomass heated greenhouses have been established in Lushnjë, a city in west-central Albania, located in the County of Fier. More information about this project are presented above.<br><br>Italian greenhouse builder Europrogress has recently completed a turnkey greenhouse project in Albania. For their client Eco Green SHPK, Europrogress built two structures from their high tech Multiart series. The greenhouse project consists of two separate structures and has a total size of 5000 square meters. The first section is a 12,8 meters wide Multiart structure with 5 bays of 27 meters, and the other one is a combined 9,6 / 12,8m Multiart structure with 4 bays with a length of 72 meters. The height under the gutter of the project is 4 meters. The project, which will be used to propagate young plants, was completed turnkey by Europrogress. The Italian greenhouse manufacturer did not only deliver their structures, but was also responsible for the complete delivery and installation of the thermal screen systems, propagation benches, irrigation system and water |

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| | tanks, bench heating systems and the lighting and electrical installations. The greenhouses are furthermore equipped with an exhaust fan system, top ventilation single ridge windows in each bay, plus automatic windows on the side and front gables. As well as this, all ventilation windows and doors are equipped with anti-aphid netting. [www.hortidaily.com] |

### *2.1.2 Cyprus*

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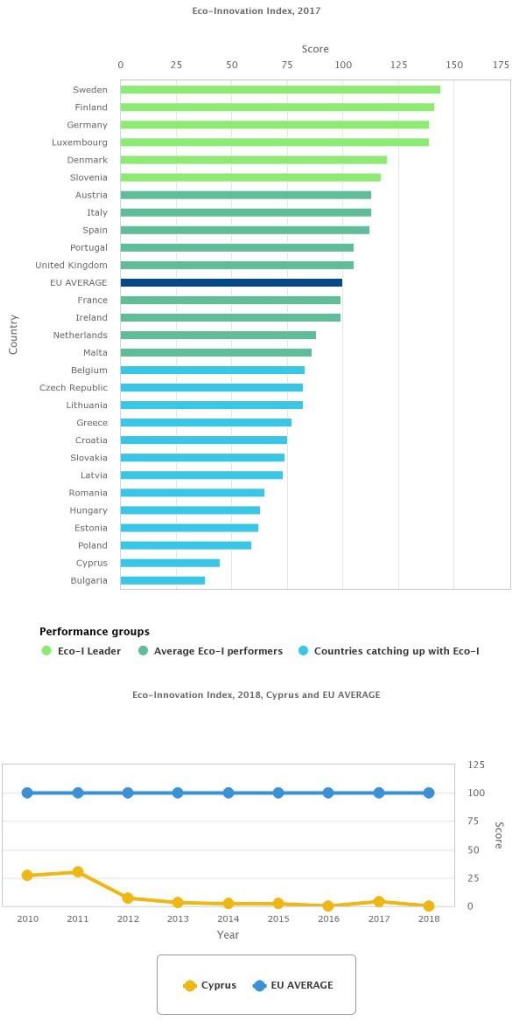
| **% Gait country level for investments on eco-innovation** *(sources: https://ec.europa.eu/environment/ecoap/country_profiles_en, Eco-innovation Index 2017: https://ec.europa.eu/environment/ecoap/indicators/index_en)* |  The eco-innovation input index is based on the national indicators of the government's environmental and energy R&D appropriations and outlays, R&D personnel, and clean-tech investment. Cyprus ranks last with a |

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| | score of 4 (EU average index 100). The score indicates no significant improvement in the performance compared to the 2015 assessments, when the score of Cyprus was 2.In 2014, total government environmental and energy R&D appropriations and outlays amounted to 0.0024% of GDP with an EU average of 0.037% (0.0025% in 2014). The total R&D personnel and researchers for Cyprus in 2016 counted for 0.36% of total employment (EU average of 1.32%) and dropped by approximately 0.01% compared to 2014. No early stage green investments were reported during the period 2014-2017 |
| **% Structural Funds at national level for eco-innovation** | 2,8% of the sectoral programme funds for eco-innovation:<br>Policy and funding measures and mechanisms promoting eco-innovative research in Cyprus still largely depend on co-financing through the Structural Funds. The majority of these measures address the development of new research infrastructure, the enhancement of collaborations among research organizations and the private sector, the facilitation of technology transfer, was well as the strengthening and enhancement of training, career development and mobility of researchers. In March 2015, the Council of Ministers adopted the Smart Specialization Strategy that allocates EUR 142 million in research in several sectors including energy and the environment. The strategy resulted in the development of the programme RESTART 2016–2020 (European |

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| | Commission, 2017)[1]. Research Programme Foundation funded over €25 million worth of research projects and supporting activities, and the budget is expected to grow in the coming years according to the following five strategic categories (Invest Cyprus, 2016):<br>•Strategic & Multi-thematic Research and Development<br>•Growth of National Scientific & Research Human Capital<br>•Applied Research Development and Enterprise Innovation<br>•Research Infrastructure Development and Large Scale Investments<br>•International Networking and Collaboration in the field of R&D and Innovation<br>The National Policy Statement for the Enhancement of the Entrepreneurial Ecosystem supports the general framework conditions for research in businesses (European Commission 2017). The statement amongst others puts forward the reform of the corporate tax system, enhanced governance for the creation of university spin-offs, stronger intellectual property legislation, and using the Structural Funds in a more targeted manner. |
| **Which sector is the priority of the country for eco-innovation (Industry, Agriculture, Public buildings, Transport, etc).** | Energy is considered as one of the dominant priority sectors, together with tourism. The areas of sustainable growth and environment are treated as |

[1] European Commission, (2017) Energy Union Factsheet Cyprus. Available at: https://ec.europa.eu/commission/sites/beta-political/files/energy-union-factsheet-cyprus_en.pdf

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| | important horizontal sectors. By 2016 Cyprus received 0.2% of the EU H2020 contribution (European Commission, 2017). As of September 2017, the amount of EUR 4.2 million was awarded to Cypriot organizations in projects addressing amongst others energy (e.g. the projects ZERO-PLUS - net zero energy settlements and GOFLEX - smart grids). The agricultural and food industries are also contributing to eco-innovative solutions: waste treatment in olive oil production; compost produced from recycled plants (such as lawn, garden clippings, tree leaves, vine leaves etc.); biological waste treatment (that turns biodegradable waste into either high quality compost or Solid Recovered Fuel); advanced glasshouse for producing exotic flowers; organic and energy efficient production of wine and olive oil etc. (EIO, 2016)[2]. |
| **% Structural Funds at regional level for eco-innovation** | N/A<br>Cyprus is managing Structural Funds on national level |
| **Which sector is the priority of the region for eco-innovation (Industry, Agriculture, Public buildings, Transport, etc).**<br>*Please provide percentages, if possible.* | N/A<br>Cyprus is managing Structural Funds on national level |
| **Which are the Beneficiaries of eco-innovation investments (SMEs, big** | Eco-innovation in Cyprus is predominantly produced by individual |

[2] Eco-innovation Observatory - EIO, (2016), Good practices in Cyprus. Available at: http://www.eco-innovation.eu/index.php?option=com_labels&view=label&label=cyprus-&Itemid=135

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| **enterprises, farmers, etc)** | actors – research institutes or enterprises[3]. No further information is available. |
| **Please provide some examples of important investments on eco-innovation in agriculture in your region and explain how they were financed (tool, % funding, amount of funding, etc).**<br>*Provide websites, photos and other material.* | **Greening Cyprus Beaches[4]**<br>The Cyprus Tourism Organisation, the Travel Foundation UK and the Cyprus Sustainable Tourism Initiative launched the programme as an effort to promote sustainable tourism in the country. Among others, the programme promotes a sustainable approach in the exploitation of coastal areas. Educational programmes are organised to educate entrepreneurs on the business opportunities and sustainable practices.<br>Key words: Ecotourism, education<br>Reference:<br>http://csti-cyprus.org/?page_id=65<br>Contacts:<br>greeningcyprusbeaches@csti-cyprus.org<br>  <br>**Mediterranean Cooperation in the Treatment and Valorization of Olive Mill Wastewater (MEDOLICO)[5]**<br>MEDOLICO is a project carried out jointly by Mediterranean institutions from Cyprus, Israel, Jordan, Italy as well |

[3] European Commission, (2019),Eco-Innovation Country Profile: Cyprus, available at: https://ec.europa.eu/environment/ecoap/cyprus_en

[4] Source: Greening Cyprus Beaches at: http://csti-cyprus.org/?page_id=65

[5] Source: MEDOLICO at: https://www.medolico.com/

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| | as a Portuguese Institution. Cyprus, is participating through the NIREAS International Water research Center, an institution of the University of Cyprus. The project aims to prevent and reduce the environmental risk presented by Olive Mill Wastewater (OMW).<br>MEDOLICO evaluates the performance of various promising OMW treatment technologies. Further, it will develop uniform treatment procedures according to the sought purpose (water for irrigation, recycling into the olive mill manufacturing process, etc.), which will then be pilot tested. There will be a further evaluation of the potential for valorization of the collected byproducts so that a solution can be provided that sustainably protect the environment heritage of the Mediterranean regions while remaining cost-efficient for the olive mills. The project is funded by the European Neighborhood and Partnership Instrument (ENPI) in the framework of the cross-border cooperation programme for the Mediterranean Sea Basin.<br>Key words: agriculture, water pollution, cross-border cooperation<br>Website: www.medolico.com<br>Contacts: medolicoproject@gmail.com |

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| **Are innovative greenhouses amongst the investments financed in your region? If yes, please provide information about major investments (innovative greenhouse units)** | The HYDROFLIES[6] project entitled "Sustainable of Biotic and Abiotic Parameter in Hydroponically Grown Tomatoes and Lettuce-HYDROFLIES" was established on the basis of K3_01_03 on 15/10/2012 at Inter-Border Cooperation Programme between Greece-Cyprus 2007-2013, co-financed 80% by the European Union (ERDF) and 20% by National Funds of Greece and Cyprus. The aim of the project is the development of closed hydroponics systems in greenhouses (recycling nutrient solutions) for two important vegetables, tomato and lettuce, grown in Crete and Cyprus, as well as farmers training to use them. Furthermore, the "Hydroflies" team developed a mass rearing system for two important beneficial insects that were used to control various herbivore pests such as Tuta absoluta, whiteflies and others in order to minimize the use of pesticides. Finally, a management protocol for nutrient solutions and phytopathological problems was drawn up for these crops especially for Crete |

[6] More at: http://web.cut.ac.cy/hydroflies/images/stories/hydroflies/documents/brochure.pdf and https://www.elgo.gr/images/pdf/publications/demeter_magazine/Dhmhtra_10_.pdf

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| | and Cyprus microclimate, which can be used to implement a single certification for these products. |

### *2.1.3 Region of Thessaly, Greece*

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| **% GDP at country level for investments on eco-innovation** *(sources: https://ec.europa.eu/environment/ecoap/country_profiles_en, Eco-innovation Index 2017: https://ec.europa.eu/environment/ecoap/indicators/index_en)* | Environmental policy in Greece focuses on the promotion of renewable energies and energy efficiency measures that can promote eco-innovations. The country benefits from its significant natural capital in renewable energies – solar, wind, tidal –, growth in green and alternative tourism and innovation in agriculture and the food industry. Despite the economic crisis, by the end of 2017, the installed capacity of photovoltaics, reached 2,623 MWp which covered 7.1% of the electricity consumption. Nevertheless, the uptake of renewable energy has been stagnated the past years.<br>In terms of eco-innovation performance, in 2017 Greece continues to rank low among the EU-28 countries with a score of only 77 (on an EU-28 average of 100). This places Greece on 19th position in the EU-28 ranking of eco-innovative countries.<br>The policy framework to support innovation was improved significantly, through the 2014 Action Plan for the Implementation of the National Strategy for Research, Technological Development and Innovation for the period 2015-2021, which amongst others promotes specific activities in relation to eco-innovation. An integrated policy framework to promote circular economy does not exist. |

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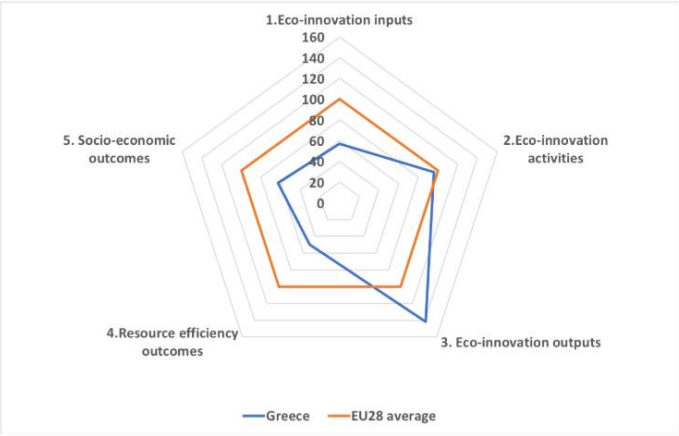
| |  <br>Diagram 1- Eco-innovation Scoreboard 2017<br><br>The government continues to give a slightly higher priority to investing in research and development in the areas of energy, including renewables, and the environment. Between 2014 and 2016, the total government environmental and energy R&D appropriations and outlays amounted increased slightly from 0.022% of GDP to 0.024% (with an EU average of 0.037% in both 6 years). Meanwhile, the green early stage investments dropped from 0.70 $/per capita in the period 2012-2015 to 0.12 $/per capita for the period 2014-2017. |
| **% Structural Funds at national level for eco-innovation** (*source can be the national funding agency, e.g. General Secretariat for Research and Technology in Greece or the relevant Ministry or Managing Authority of Operational Programme "Environment", "Competitiveness" etc)* | The funding depends heavily on EU funds. The Operational Programme on Competitiveness, Entrepreneurship and Innovation under the new National Strategic Reference Framework (2014-2020) allocates 28.8 million EUR on the promotion of innovative technologies for environmental protection and resource efficiency in the areas of waste management, water management, soil contamination and air pollution. |
| **Which sector is the** | 1. Public Buildings |

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| **priority of the country for eco-innovation (Industry, Agriculture, Public buildings, Transport, etc).** *Please provide percentages, if possible.* | 2. Waste management<br>3. Industry<br>4. Agriculture |
| **% Structural Funds at regional level for eco-innovation** (*source can be the Managing Authority of Regional Operational Programme)* | % of ROP financing for eco-innovation: |
| **Which sector is the priority of the region for eco-innovation (Industry, Agriculture, Public buildings, Transport, etc).** *Please provide percentages, if possible.* | 1. Public Buildings<br>2. Waste management<br>3. Industry<br>4. Agriculture |
| **Which are the Beneficiaries of eco-innovation investments (SMEs, big enterprises, farmers, etc)** | 1. SMEs<br>2. big enterprises<br>3. farmers<br>4. Other |
| **Please provide some examples of important investments on eco-innovation in agriculture in your region and explain how they were financed (tool, %** | 1. THRACE GREENHOUSES<br>Cost of investment: 8,6 m€<br>Funding: Investment Law (75%)<br>Thrace Greenhouses were established in 2013 in Neo Erasmio, Xanthi, by two Greek groups with dynamic presence in the global market, Thrace Group and Elastron, that made the strategic decision to invest in innovation and sustainable agriculture.<br>Targeted investments in know-how and facilities, to |

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| **funding, amount of funding, etc).** *Provide websites, photos and other material.* | maintain constant supply of nutritious and tasty low carbon footprint vegetables with no cost for the environment: Due to the use of the renewable Geothermal energy, all heating needs are met in an environmentally friendly way, while the hydroponic production method ensures ideal cultivation conditions throughout the year, in full respect towards the environment. Furthermore, THRACE GROUP'S vast experience in the food packaging sector is an asset to create customized packaging solutions, designed to meet any customer's need or specification.<br>EXPERTISE<br>By utilizing the hydroponic cultivation method and benefiting from the rich Geothermal energy sources in the greater area, Thrace Greenhouses achieved the supply of high quality, low carbon footprint vegetables all year round. By operating in their state-of-the-art facilities that currently occupy 14Ha plot of land, Thrace Greenhouses are the largest geothermal greenhouses in Europe. The company is certified for its Good Agricultural Practices by the GLOBALG.A.P. (GGN 4052852805575).<br>PRODUCTS<br>Hydroponic tomatoes and cucumbers.<br>AREAS OF APPLICATION<br>Geothermal Energy, Hydroponic Agricultural Production. Low Carbon Footprint - Zero Emissions of CO2.<br>MARKETS<br>The main markets of Thrace Greenhouses are currently Greece and SE Europe.<br><br>Website: http://www.kipos-xanthis.gr/gr/en/home/<br><br>  |

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| **Are innovative greenhouses amongst the investments financed in your region? If yes, please provide information about major investments (innovative greenhouse units)** | At country level, Greece is investing on geothermal greenhouses:<br>1) Existing geothermal Greenhouse in Erasmio, Thrace<br>2) 7 M euros for new geothermal greenhouses in Kessani, Thrace<br>3) 8 M euros for hydroponic greenhouse in Petrousa, Drama |

### *2.1.4 Region of Molise, Italy*

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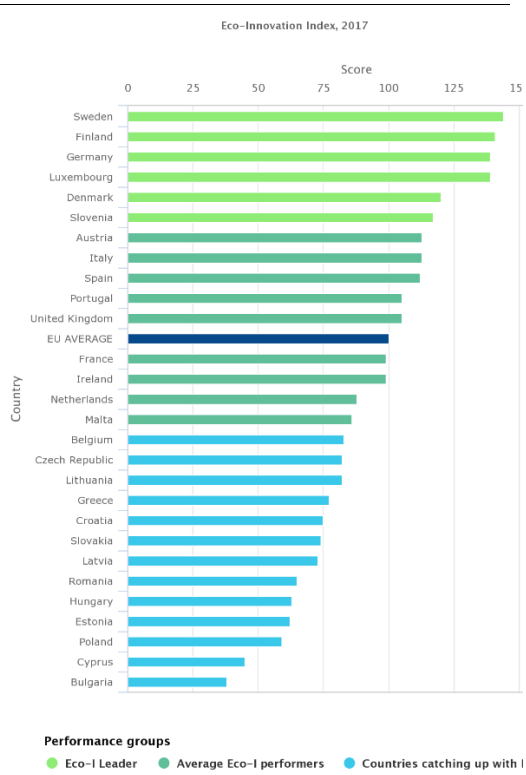
| **% GDP at country level for investments on eco-innovation**<br>*(sources: https://ec.europa.eu/environment/ecoap/country_profiles_en, Eco-innovation Index 2017: https://ec.europa.eu/environment/ecoap/indicators/index_en)* |  |
| **% Structural Funds at national level for eco-innovation**<br>**EARDF (RDP) and ERDF-ESF** | 68% of the sectoral programme Rural Development Programme funds for eco-innovation:<br>The total amount RDP (2014-2020) is 10 Billions Euro , 6.8 billions could be |

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| | referred to eco-innovation.<br>The total amount for European Regional Development Fund and European Social Fund is 41,2 Billions of Euro, almost 50% is related to eco-innovation |
| **Which sector is the priority of the country for eco-innovation (Industry, Agriculture, Public buildings, Transport, etc).**<br>*Please provide percentages, if possible.* | As the topic of eco-innovation is very transversal often there is not a specific budget allocated, nevertheless Industry of Waste and Transport receive the main focus |
| **% Structural Funds at regional level for eco-innovation** | % of ROP financing for eco-innovation:<br>ROP 51%<br>RDP 30% |
| **Which sector is the priority of the region for eco-innovation (Industry, Agriculture, Public buildings, Transport, etc).** | Agricultural, Small Industries about High tech<br>business |
| **Which are the Beneficiaries of eco-innovation investments (SMEs, big enterprises, farmers, etc)** | SMEs: Mostly related to waste and recycle<br>Big enterprises: Transport<br>Companies and research organizations working in R&D<br>Farmers |
| **Please provide some examples of important investments on eco-innovation in agriculture in your region and explain how they were financed (tool, % funding, amount of funding, etc).**<br>*Provide websites, photos and other material.* | 1. SYMBI project, Interreg Programme, 1.500.000 euro, 85% of co-financing,<br>SYMBI aims to support the transition to one efficient economy of resources through the Industrial Symbiosis, And to establish synergies for the management and exchange of waste, energy and materials |

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| | https://www.interregeurope.eu/symbi/<br><br>We will improve it with some projects financed with measure 1.1.1. of ERDF 2014/2020 of Molise Region |
| **Are innovative greenhouses amongst the investments financed in your region? If yes, please provide information about major investments (innovative greenhouse units)** | YES.<br>**Measure 4 P.S.R -RDP**<br>The program is related to investments for structural interventions on young farmers and associated farms located in disadvantaged areas. Granted from 40% to 60% the total amount of the investments.<br>**Submeasure 4.1** Investments for farming ,<br><br>a. Investments for infrastructure modernization.<br>b. Investments for ecoinnovation<br><br>**AXIS 1 ROP ERDF/ESF 2014/2020**.<br>Exploitation and dissemination of innovation and knowledge in Molise region by fostering the collaboration amongst the SMEs, Universities, and organizations in the field of research. |

Figure 1 – Symbi project, Molise Region, Italy

### *2.1.5 PACA Region, France*

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| **% GDP at country level for investments on eco-innovation** *(sources: https://ec.europa.eu/environment/ecoap/country_profiles_en, Eco-innovation Index 2017: https://ec.europa.eu/environment/ecoap/indicators/index_en)*<br><br>*https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&pcode=t2020_20&plugin=1*<br>*http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=rd_p_persocc&lang=en* | France has favourable legislation supporting eco-innovation and entrepreneurship since 2003. It has been reinforced within the 2015-2020 national strategy for ecological transition to sustainable development that supports knowledge production, research and innovation. In 2017, France ranked 13th among the EU Eco-innovation composite index, a bit below the European average of eco-innovation inputs (Europa, 2018).<br><br>The French Gross domestic expenditure on R&D (GERD) for France is **2.25%** below the planned target of 3% (Eurostat, 2016), while the total number of R&D personnel was around **576K** in 2014. (Eurostat, 2018). |
| **% Structural Funds at national level for eco-innovation**<br>**(***source can be the national funding agency, e.g. General Secretariat for* | % of the sectoral programme funds for eco-innovation:<br>At the national level there is little or no structured and identified regional policy in |

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| *Research and Technology in Greece or the relevant Ministry or Managing Authority of Operational Programme "Environment", "Competitiveness" etc)* | support of eco-innovations and eco-enterprises included in the programming of the Structural Funds 2007-2013. The main reasons for this situation are:<br>- A lack of coordination and a dispersion of the responsible authorities including within the services of the Regional Councils<br>- A very broad theme that hardly leads to consensus and prioritization<br>- A poor knowledge of eco-companies and the specific approach of eco-innovation at regional level<br>- A dispersion of initiatives and projects including the multiplication of the speakers on these domains[7] |
| **Which sector is the priority of the country for eco-innovation (Industry, Agriculture, Public buildings, Transport, etc).**<br>*Please provide percentages, if possible.* | During the 2007-2013 period, eco-innovation was mainly considered as innovation in the industrial sectors (water, waste, air, soil, greenhouse gases, renewable energy, etc.) as a development of an industrial offer. In recent years, a more ambitious definition aims to include eco-innovations in strategies to improve the competitiveness and sustainable development of companies and territories |
| **% Structural Funds at regional level for eco-innovation**<br>**(***source can be the Managing Authority of Regional Operational Programme)* | % of ROP financing for eco-innovation:<br>For the period 2007-2013 in PACA region, 34% of FEDER funds were allocated to Eco innovation. |
| **Which sector is the priority of the region for eco-innovation (Industry, Agriculture, Public buildings, Transport, etc).**<br>*Please provide percentages, if possible.* | In the Regional Operational Program ERDF - ESF[8], eco innovation appears on<br><br>Priority axis 1: Research, Innovation, SMEs<br>Areas of strategic activities: |

[7] Europ'Act project n ° 30281 -"Europe and Regions for eco-innovation and eco-businesses"

[8] L'europe s'engage https://europe.maregionsud.fr/jai-un-projet/programmes-europeens/po-feder-fse/

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| | • Research and Innovation Infrastructures<br>Objectives: Increase Research Activities in Strategic Areas of Activity.<br>Amount: 21.8M € including 10.9M € of ERDF<br>• Research and Innovation Investments<br>Objectives: To develop innovation, value creation and employment<br>Amount: € 88M including € 44M ERDF<br>• Business creation<br>Objectives: Strengthen business creation<br>Amount: 38M € including 18.8 M € ERDF<br>• New SME-SME innovative business models-internationalization<br>Objectives: To develop companies, especially at the international level<br>Amount: 55.5 M € including 27.7 M € of ERDF |
| **Which are the Beneficiaries of eco-innovation investments (SMEs, big enterprises, farmers, etc)** | • Research and academia<br>• SMEs and large companies |
| **Please provide some examples of important investments on eco-innovation in agriculture in your region and explain how they were financed (tool, % funding, amount of funding, etc).**<br>*Provide websites, photos and other material.* | Eco innovation in PACA: **AgroEnvironmed**<br>Techno-environmental platform for the agro-food sector in the Mediterranean, led by the Andalusian Institute of Technology (11 partners, French partner: CRITT agro-food)<br>Total cost: € 1,397,985 including ERDF: € 1,058,721 (75.7%)<br>This project aims to make the Mediterranean agro-food industry a benchmark for eco-innovation.<br>The project targets SMEs and aimed at developing activities in five agri-food sub-sectors: olive oil, wine, meat, fruit and vegetables and dairy products. The aim is to produce a catalog of environmental technologies and good practices in these sectors. |

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| | Agro-Environmed Leaders in eco-innovation med |
| **Are innovative greenhouses amongst the investments financed in your region? If yes, please provide information about major investments (innovative greenhouse units)** | There is a Greenhouses investment aid devices managed by France Agrimer at the national level and by the region itself at the regional level.<br><br>In 2017 the PACA Region has approved a project to revitalize sheltered production. Initiated for two years by the Chamber of Agriculture of Bouches-du-Rhone and the Pôle Maraîchage, its objective is to redeploy the production tool by relaunching investments, the implementation of specific training and a reorganization of technical support. |

### *2.1.6 Murcia region, Spain*

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| **% GDP at country level for investments on eco-innovation**<br>*(sources: https://ec.europa.eu/environment/ecoap/country_profiles_en, Eco-innovation Index 2017: https://ec.europa.eu/environment/ecoap/indicators/index_en)* | As for resource efficiency outcomes, Spain is well above the EU average with an index of 112, with strong performance in material productivity (149), energy productivity (118) and greenhouse gas emissions (121). Finally, Spain's overall performance in terms of socio-economic outcomes is 5% above the EU average, against 17% in 2013. The green economy contributes an estimated EUR 2.8% of GDP. The share of eco-industry employment continues to be largely above the EU average, but to a lesser extent: it was 37% higher than average in 2015 against 68% in 2012. This figure illustrates the government's hopes placed on the |

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| | dynamism of green jobs as a means to lower unemployment rates. Eco-industries exports remain at very low level, with an index of only 47% under EU average. |
| **% Structural Funds at national level for eco-innovation**<br>**(***source can be the national funding agency, e.g. General Secretariat for Research and Technology in Greece or the relevant Ministry or Managing Authority of Operational Programme "Environment", "Competitiveness" etc)* | <u>% of the sectoral programme funds for eco-innovation:</u><br>Public policy support for eco-innovation consists of a mix of first and second-generation policies and measures addressing technologies and resources for pollution control and energy efficiency. Eco-innovation is generally embedded in national and regional policies targeting resource efficiency, environmental innovations, clean technologies and sustainable development. The first Spanish Strategy on Circular Economy that will be published during 2018, will set up a new framework for the transition toward a more circular economy in Spain. |
| **Which sector is the priority of the country for eco-innovation (Industry, Agriculture, Public buildings, Transport, etc).**<br>*Please provide percentages, if possible.* | The most important eco-innovation areas and trends include waste management, eco-design, green engineering, recycling, energy efficiency, sustainable construction, water efficiency and urban water systems.<br>The construction sector ranks first in terms of eco-innovation and leadership potential estimated for the year 2030. In particular, it is estimated that energy saving in buildings is the first global measure to reduce the environmental impact of buildings. activities of man. Transport also plays a key role in reducing energy consumption, both with the development of new motorized vehicle technologies and the implementation of new transport concepts that encourage reduced use. On |

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| | the other hand, for the reduction of emissions and waste, the development of ecological chemistry is fundamental, which will encourage eco-innovation in sectors such as biological products, food and packaging. Other sectors that have significant potential for improvement at the environmental level are Information Technologies (with the development of concepts such as Smart Cities), Consumer Goods or the Health Sector |
| **% Structural Funds at regional level for eco-innovation** (*source can be the Managing Authority of Regional Operational Programme)* | % of ROP financing for eco-innovation:<br><br>Information not available |
| **Which sector is the priority of the region for eco-innovation (Industry, Agriculture, Public buildings, Transport, etc).** *Please provide percentages, if possible.* | 1. Industry: 90%<br>2. Agriculture: 10 %<br>According to the criteria of public grants and incentives in the Region of Murcia yearly. |
| **Which are the Beneficiaries of eco-innovation investments (SMEs, big enterprises, farmers, etc)** | 5. 85 % SMEs:<br>6. 5% big enterprises:<br>7. 10% farmers:<br>8. Other:<br>According to the criteria of public grants and incentives in the Region of Murcia yearly. |
| **Please provide some examples of important investments on eco-innovation in agriculture in your region and explain how they were financed (tool, % funding, amount of funding, etc).** *Provide websites, photos and other material.* | DRAINUSE project www.drainuse.eu |
| **Are innovative greenhouses amongst the investments financed in your region? If yes, please provide information about major investments (innovative greenhouse** | DRAINUSE project www.drainuse.eu |

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| **units)** | |

Figure 2 – Multi tunnel Greenhouses. Murcia

## *2.2 Financial schemes for eco-innovative investments in the partner regions*

### *2.2.1 Region of Berat*

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| **Identified Financial tool / scheme** | Interreg IPA II cross-border cooperation programme "Greece - Albania 2014-2020" |
| **Short description of the tool/scheme (name, objectives, budget, responsible authority)** | The 2014 - 2020 Interreg IPA CBC Greece – Albania is an example of the investment strategy to boost the sustainable development. . The overall budget of Interreg IPA II cross-border cooperation programme "Greece - Albania 2014-2020" is EUR 35.965.222 (EU contribution). The 10% of the total budget, 3.596.522 euro, is bounded to **the thematic priority 'b' that is concerned with the environmental protection**, the promotion of the climate change adaptation and mitigation, the risk prevention and management. The total operation budget is 54.076.734,00 euro. The regions involved are: Region of Vlorë, the Region of Gjirokastër, the Region of Korçë and the Region of Berat in Albania. |
| **Funding rate (%)** | 85% by EU, 15% by national government |
| **Maximum funding (€)** | 1.000.000,00 € per project |
| **Beneficiaries** | - National, regional and local authorities and their institutions dealing with natural and cultural heritage, and regional development planning;<br><br>- Protected area management bodies and bodies responsible for environmental protec-tion, cultural asset management bodies, museums, art collections and other cultural organizations |

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| | - Non-governmental organizations, non-profit-organizations and other civil society associations dealing with natural resources, and cultural issues.<br><br>- Collective professional organizations of the tourism industry. |
| **Area of application** | Cross-border |
| **Feasibility** | The program is concerned with the environmental protection and the promotion of the climate change adaptation and mitigation, however no specific funds are provided to the construction of innovative greenhouses. |

### *2.2.2 Cyprus*

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| **Identified Financial tool / scheme** | OP "Competitiveness and Sustainable Development"<br>Priority Axis: Investment Priority: 1a - Strengthening research and innovation (R&D) infrastructure and capacity to develop excellence in research and innovation and to promote capacity centers, in particular centers of European interest<br>Program RESTART 2016-2020<br>https://www.research.org.cy/el/%CE%BA%CF%85%CF%80%CF%81%CE%B9%CE%B1%CE%BA%CE%AC-%CF%80%CF%81%CE%BF%CE%B3%CF%81%CE%AC%CE%BC%CE%BC%CE%B1%CF%84%CE%B1-%CE%B5%CF%80%CE%B9%CF%87%CE%BF%CF%81%CE%AE%CE%B3%CE%B7%CF%83%CE%B7%CF%82/%CF%80%CF%81%CE%BF%CE%B3%CF%81%CE%AC%CE%BC%CE%BC%CE%B1%CF%84%CE%B1-restart-2016-2020 |
| **Short description of the tool/scheme (name, objectives, budget, responsible authority)** | RESTART 2016-2020 is the current national framework programme for Research, Technological Development and Innovation which is co-funded by national and European funds and is carried out in conjunction with other national initiatives and programmes. The total budget of RESTART 2016-2020 Programmes is 99.140.000 Euros. RESTART 2016- |

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| | 2020 Programmes «Work Programme Document», is the basic reference document and an important information source for interested parties regarding the supporting Programmes for Research, Technological Development and Innovation. Responsible authority is the Foundation for Research and Innovation https://www.research.org.cy.<br><br>**PRIORITY SECTOR "ENERGY"**<br>A. Development of New or Optimised Technologies for Renewable Energy Sources<br>A.1 Solar Energy<br>Indicative areas: Solar Photovoltaic Technologies, solar, crystalline-silicon-based solar cells, thin films and deposition techniques, development of solid aggregate PV systems, advanced materials, and procedures of creation/transportation of results during processing, concentrated solar energy, high concentration technologies, thermal solar energy storage, co-production of electricity and desalinated water using solar energy.<br>A.2 Technologies for Solar Heating and Cooling<br>Indicative areas: Heat Pump Technologies for heating and cooling, co-production and biomass systems for hot water and heating, photovoltaic systems and co-production systems for energy production, integration of solar systems in buildings, research for the development of new materials for storage, optimized transportation of heating, insulation and optimized collectors.<br>B. Innovative Applications of Renewable Energy Sources<br>B.1 Solar Thermal Technologies<br>Indicative areas: Solar heating and cooling, great scale systems, district heating systems, coproduction of electricity and desalinated water using solar energy, seasonal heating storing.<br>B.3 Innovative Renewable Energy Sources applications in tourism, agriculture, livestock, fish-farming, etc.<br>D. Efficient Use- Energy Saving<br>D.3 Networks for Energy Transportation and Distribution<br>Indicative areas: managing, monitoring, distribution, network control, smart networks, measuring sensors, data |

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| | management for optimal system control. Optimal integration of Renewable Energy Sources (RES) in the electricity distribution system, new technologies for energy transformation, optimized management coordination of various types of RES.<br><br>**PRIORITY SECTOR "AGRICULTURE- FOOD INDUSTRY»**<br>A. Competitiveness of Agricultural and Livestock Production<br>A.1 New Technologies, ICT and Robotics in Agricultural and Rural Production<br>A.2 Utilization of Biotechnology in Agriculture, Aquaculture and Livestock<br>Indicative areas: increase of efficiency of plants and livestock, use of biological resources in agriculture and livestock systems, molecular genetics and reproduction of plants<br>A.3 Protected Designation of Origin, Geographical Indication and Traditional Products<br>B. Food Quality and Safety<br>B.1 Addressing Nutritional Chain Risks in all stages: Farm, Harvest, Transport, Processing, Market, Consumer<br>E. Environmental and Socio-Economic Dimension<br>E.1 Effective Use of Biodiversity and Ecosystems<br>Indicative areas: evaluation of interactivity and viable management of food production, effective use in intensive agricultural systems, etc. Sustainable management of resources and waste: management of soil, water resources, animal waste, recycled water, etc.<br>E.2 Optimal Use of Water Resources<br>Indicative areas: measures to face pollutants, ensuring the quality, best use and saving of water supplies.<br>E.3 Exploitation of Renewable Energy Sources in Agricultural Production |
| **Funding rate (%)** | For beneficiaries classified as "Research Organizations" and "Other Public and Broader Public Sector Organizations", the Aid Intensity amounts, as a rule, to 100% of the project's eligible costs, and their funding does not fall under the control system of state aid. The Maximum Aid Intensity for beneficiaries not classified as one of the above types of organizations, is that of the Type of Enterprise to which they |

<table>
<tr><td></td><td>belong (Small, Medium-size or Large Enterprise):
<table>
<tr><th colspan="6">A. BASIC INTENSITY<br>Calculated according to the project research character</th></tr>
<tr><th></th><th>The Project's Research Character</th><th>Small Enterprise</th><th>Medium-sized Enterprise</th><th>Large Enterprise</th><th>"Research Organisations" and "Other Public and Broader Public Sector Organisations"</th></tr>
<tr><td>A.1</td><td>Fundamental Research Activities</td><td colspan="3">100%</td><td rowspan="4">100%[24]</td></tr>
<tr><td>A.2</td><td>Industrial Research Activities</td><td>70%</td><td>60%</td><td>50%</td></tr>
<tr><td>A.3</td><td>Experimental Development Activities</td><td>45%</td><td>35%</td><td>25%</td></tr>
<tr><td>A.4</td><td>Feasibility Studies</td><td>70%</td><td>60%</td><td>50%</td></tr>
<tr><th colspan="6">B. SUPPLEMENTARY INTENSITY</th></tr>
<tr><th colspan="5">Is added to the Basic Intensity in the event that the project covers one of the following special provisions (besides Feasibility Studies) if one of the following conditions is met:</th><th>Enterprise</th></tr>
<tr><td colspan="5">I. The Project involves effective collaboration [25]:<br>▪ between enterprises of which at least one is an SME or is carried out in at least two member states or in one member state and one contracting party of the European Economic Area (EEA) and no single enterprise bears more than 70% of the eligible costs, or between one enterprise and one or more research and knowledge-dissemination organisations, where the latter bear at least 10 % of the eligible costs and have the right to publish their own research results</td><td rowspan="2">+15%</td></tr>
<tr><td colspan="5">II. The Project results are widely disseminated through conferences, publications, free access repositories or through free software or open source software.</td></tr>
</table></td></tr>
<tr><td>Maximum funding (€)</td><td>According to the Call for each Priority Sector</td></tr>
<tr><td>Beneficiaries</td><td>Research Organizations, Enterprises, Other Organizations (Other Private Sector Organizations, Other Public and Broader Public Sector Organizations), Researchers, students.</td></tr>
<tr><td>Area of application</td><td>National</td></tr>
<tr><td>Feasibility</td><td>The financial scheme/tool is applicable for the construction of innovative greenhouses as well as the creation, establishment, pilot testing and operation of innovative technologies/equipment.</td></tr>
<tr><td colspan="2"></td></tr>
<tr><td>Identified Financial tool / scheme</td><td>Eurostars Cyprus, Specific Action of the «EUREKA Cyprus» Programme</td></tr>
<tr><td>Short description of the tool/scheme (name, objectives, budget, responsible authority)</td><td>The «EUROSTARS Cyprus» Specific Action aims primarily to enhance the competitiveness of Cypriot R&D Performing SMEs, the networking and cooperation with organisations from abroad, the development of new or improved innovative products, processes or services through their participation in international industrial R&D Projects. http://www.research.org.cy/EN/int_cooperation/eurostars/specific_action.html</td></tr>
<tr><td>Funding rate (%)</td><td>• Small Enterprises: Industrial Research Activities 70% - Experimental Development Activities 60%</td></tr>
</table>

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| | • Medium enterprises: Industrial Research Activities 70% - Experimental Development Activities 50%<br>• Large companies: Industrial Research Activities 65% - Experimental Development Activities 40%<br>• Research Organization / Public Entities: Industrial Research Activities 100% - Experimental Development Activities 100% |
| **Maximum funding (€)** | 175.000 for Partners, 200.000 for International Project Coordinators. |
| **Beneficiaries** | SMEs, Large Companies, Research organizations, public sector |
| **Area of application** | National / European |
| **Feasibility** | The financial scheme is applicable for the construction of innovative greenhouses in terms of testing new technologies.<br><br>The Coordinator of the Cypriot Consortium should also submit a Proposal on the national IRIS Portal (https://iris.research.org.cy).<br><br>The Project Proposal should be accompanied with the following documents:<br>-Each participant's Annual Financial Report corresponding to its last full accounting year, even if it has not yet been submitted to the national authorities, and<br>-Each participant's Annual Financial Report corresponding to the financial year prior to the one mentioned above.<br>If no Financial Reports can be submitted (for example, for a start-up company), a business plan may be submitted.<br>The aforementioned documents may be submitted in the national language of the participants. Organizations which are 100% publicly funded (Research Organizations and Public Multi-beneficiary Organizations) are not required to supply these documents.<br>More recent audited Financial Statements will be requested during the negotiation phase. |
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| **Identified Financial tool / scheme** | Rural Development Programme (RDP) 2014-2020 (Structural Funds) |

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| | http://www.paa.gov.cy/moa/paa/paa.nsf/index_gr/index_gr?OpenDocument |
| **Short description of the tool/scheme (name, objectives, budget, responsible authority)** | The Rural Development Programme (RDP) 2014-2020 of the Republic of Cyprus is the main implementation tool for rural policy for the development of, the primary sector of production and the rural areas of Cyprus. It is made up of a number of measures which aim to boost the competitiveness of agriculture, to ensure the sustainable management of natural resources and achieve a balanced territorial development, including the creation of employment opportunities. The Managing Authority of the Programme is the Ministry of Agriculture, Rural Development and Environment.<br><br>In the context of the Rural Development Programme 2014-2020 a total amount of €243,3 mil. is expected to be spent. The European Agricultural Fund for Rural Development (EAFRD) will contribute 53% of total public expenditure while the rest of the amount will be provided by the Republic of Cyprus as National contribution. Its main priority Axes are:<br>- Knowledge transfer and innovation in agriculture, forestry, and rural areas<br>- Enhancing farm viability and competitiveness of all types of agriculture<br>- Food chain organization, including processing and marketing of agricultural products, animal welfare and risk management in agriculture<br>- Restoring, preserving and enhancing ecosystems related to agriculture and forestry<br>- Resource efficiency and a low carbon-climate resilient economy<br>- Social inclusion, poverty reduction and local development in rural areas<br><br>The specific measure are as follows:<br>- Knowledge transfer and information actions<br>- Agricultural and food quality systems<br>- Investments in tangible assets<br>- Aid for the first establishment of young farmers |

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| | - Basic Services and village redevelopment in rural areas<br>- Investments in the development of forest areas and in improving the sustainability of forests<br>- Setting up of producer groups and organizations Agri-environment and Climate Action<br>- Biological Agriculture<br>- Aid under Natura 2000 and the Water Framework Directive<br>- Aid for areas with natural or other handicaps<br>- Good treatment of sheep and goats Cooperation<br>- Support for local development through LEADER<br>Technical assistance |
| **Funding rate (%)** | From 40-100% depending on each measure and on the beneficiary |
| **Maximum funding (€)** | From 40.000 to 2.000.000 euros (depending on each measure Call's terms of reference) |
| **Beneficiaries** | The Programme is addressed to various types of beneficiaries such as farmers, producer groups, businesses, local authorities, partnerships, government departments and other bodies. |
| **Area of application** | National |
| **Feasibility** | The financial scheme/tool is applicable for the construction of innovative greenhouses as well as the creation, establishment, pilot testing and operation of innovative technologies/equipment. |

### *2.2.3 Region of Thessaly, Greece*

#### 1. ROP Thessaly 2014-2020

| **Identified Financial tool / scheme** | **ROP Thessaly 2014-2020**<br><br>*-Structural Funds (Sectoral programme/Regional programme)* |
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| **Short description of the tool/scheme (name, objectives, budget, responsible authority)** | Thessaly OP 2014-2020 has a budget of 401,130,674 € (Total EU contribution: 320,904,539 €), with ERDF: 263,809,880 € |

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| | & ESF: 57,094,659 €. The Programme aims to contribute to the main strategic goals of the region such as reversing the shrinking of the entrepreneurial and productive activities and enhance competitiveness, attractiveness and outward-looking character of the region.<br><br>Responsible Authority: Special Managing Authority of the Operational Programme "Thessaly" 2014-2020 |
| **Funding rate (%)** | Depending on the type of beneficiary, minimum 40% |
| **Maximum funding (€)** | 60% |
| **Beneficiaries** | -Agro-SMEs<br>-Farmers<br>-Construction companies |
| **Area of application** | Regional |
| **Feasibility** | Applicable for the construction of innovative greenhouses |

2. **Operational Programme on Competitiveness, Entrepreneurship and Innovation under the new National Strategic Reference Framework (2014-2020)**

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| **Identified Financial tool / scheme** | **Operational Programme on Competitiveness, Entrepreneurship and Innovation under the new National Strategic Reference Framework (2014-2020)**<br><br>*e..g.*<br>*-Structural Funds (Sectoral programme/Regional programme)* |
| **Short description of the tool/scheme (name, objectives, budget, responsible authority)** | The "Competitiveness, Entrepreneurship and Innovation" (EPAnEK) Operational Programme is one of the five sectoral operational programmes of the |

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| | Partnership and Cooperation Agreement (the new NSRF) for the period 2014-2020, which along with the 13 Regional Operational Programmes, were approved on 18/12/2014 by the European Commission.<br>EPAnEK covers the whole of Greece and has a 4.916 billion Euros public expenditure budget (3.84 billion Union contribution). The pivotal strategic objective is to enhance the competitiveness and extroversion of enterprises, to facilitate transition to quality entrepreneurship with innovation and the growth of domestic added value as the cutting edge.<br>The Operational Programme on Competitiveness, Entrepreneurship and Innovation under the new National Strategic Reference Framework (2014-2020) allocates 28.8 million EUR on the promotion of innovative technologies for environmental protection and resource efficiency in the areas of waste management, water management, soil contamination and air pollution.<br>Responsible authority: Ministry of Finance |
| **Funding rate (%)** | 40%-60% |
| **Maximum funding (€)** | 60% |
| **Beneficiaries** | -Agro-SMEs<br>-Farmers<br>-Industry<br>-Construction companies |
| **Area of application** | National |
| **Feasibility** | Applicable for the construction of innovative greenhouses |

### *3.* Investment Incentives Law

| **Identified Financial tool / scheme** | **Investment Incentives Law**<br><br>*-National funds* |
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| **Short description of the tool/scheme (name, objectives, budget, responsible authority)** | The Investment Incentives Law L.4399/2016 consists a statutory framework for the establishment of Private Investments Aid Schemes for the regional and economic development of the country. The key objectives of the law include:<br>• the creation of new jobs with emphasis in the employment of skilled human resources<br>• the increase of extroversion and innovativeness of businesses<br>• the increase in added value<br>• the improvement of technological level and competitiveness<br>• the creation of a new extrovert national image (branding)<br>• the reindustrialization of the country<br>• the attraction of foreign direct investments<br>• achieving a better placement of the country in the International Division of Labor<br>• the promotion of a balanced and sustainable development with emphasis on regional convergence.<br><br>The Investment Incentives Law provides a wide array of financial incentives (tax credits, leasing, subsidies, loans) to enterprises for investing in innovation (including eco-innovation).<br>Types of aid |

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| | • Tax relief—Tax relief comprising exemption from payment of income tax on pre-tax profits which result, according to tax law, from any and all of the enterprise's activities.<br>• Subsidy—Gratis payment by the State of a sum of money to cover part of the subsidised expenditure of the investment<br>• Leasing subsidy—Includes payment by the State of a portion of the installments paid under a leasing agreement executed to acquire new machinery and/or other equipment<br>• Soft loans by ETEAN (National Fund for Entrepreneurship and Development) The amount to be covered by a bank loan may be funded by soft loans from credit institutions that cooperate with ETEAN enterprises. |
| **Funding rate (%)** | 45% |
| **Maximum funding (€)** | There is minimum funding, not maximum and it depends on the type of business, e.g for big companies the minimum is 500.000 €.<br>The upper limit for new subsidies will amount to 45%, pursuant to the new Regional Aid Map. |
| **Beneficiaries** | • Personal companies<br>• Commercial companies<br>• Unions<br>• Social Enterprises<br>• **Agricultural Unions**<br>• **Producers' Groups**<br>• **Agricultural Consortia** |

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| **Area of application** | National |
| **Feasibility** | Is applicable for the construction of innovative greenhouses |

### 4. National Fund for Entrepreneurship and Development (ETEAN)

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| **Identified Financial tool / scheme** | **National Fund for Entrepreneurship and Development (ETEAN)**<br><br>*-Venture Capital Companies* |
| **Short description of the tool/scheme (name, objectives, budget, responsible authority)** | **National Fund for Entrepreneurship and Development (ETEAN)**<br>The National Fund for Entrepreneurship and Development (ETEAN) was founded in 2011 (Law 3912/2011) in order to support enterprises, particularly small, medium, and innovative enterprises. ETEAN is co-funded by the Operational Programme 'Competitiveness and Entrepreneurship' and other NSRF programmes, supported by the European Regional Development Fund and the European Fisheries Fund. Amongst its priority areas, the Fund aims to support business in the fields of sustainability, energy efficiency (especially in the built environment) and renewable energies. The scheme also supports activities that relate to the upgrade of energy efficiency in households.<br>ETEAN is a State financial institution, operating under a special status and subject to specific supervision of the Bank of Greece, especially regarding capital adequacy, liquidity and investment in cash reserves. Within this framework, ETEAN manages three portfolio funds, co-financed by the |

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| | European Union:<br>• Enterprise Fund (Loan Fund and Guarantee Fund)<br>• Fund Energy Efficiency Fund (Loan Fund)<br>• Fund ENALION (Guarantee Fund). |
| **Funding rate (%)** | The minimum level required in order for an investment plan to be approved for aid depends on the size of the relevant enterprise, as follows:<br>For large enterprises: €1,000,000<br>For medium-sized enterprises: €500,000<br>For small enterprises: €300,000<br>For micro enterprises: € 200,000 |
| **Maximum funding (€)** | 45% |
| **Beneficiaries** | • Personal companies<br>• Commercial companies<br>• Unions<br>• Social Enterprises<br>• **Agricultural Unions**<br>• **Producers' Groups**<br>• **Agricultural Consortia** |
| **Area of application** | National |
| **Feasibility** | Applicable for the construction of innovative greenhouses |

### *2.2.4 Region of Molise, Italy*

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| **Identified Financial tool / scheme** | RDP |
| **Short description of the tool/scheme (name, objectives, budget, responsible authority)** | NAME: Programma sviluppo Regionale<br>PSR. The Molise Rural Development Program 2014-2020 Molise - CCI 2014IT06RDRP015, was approved by the European Commission with Implementing Decision C (2015) 4623 of 2.7.2015 and ratified by the Region by |

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| | resolution of the Regional Council no. 412 of 03-08-2015 and resolution of the Regional Council n. 218 of 04.08.2015. The Molise RDP 2014-2020 is the programming instrument for regional rural development which, together with the other European Structural and Investment Funds, contributes to the implementation of the following priorities of the "Europe 2020" strategy, within the framework of the Partnership Agreement between the State Italian and the European Union.<br>**Objective:** to promote knowledge transfer and innovation in the agricultural and forestry sector and in rural areas;<br>enhance the competitiveness of agriculture in all its forms;<br>to stimulate the organization of the agri-food chain and the management of risks in the agricultural sector;<br>preserving, restoring and enhancing ecosystems dependent on agriculture and forests;<br>encourage the efficient use of resources and the transition to a low carbon and climate resilient economy in the agri-food and forestry sector;<br>promote social inclusion, poverty reduction and economic development in rural areas.<br>**Budget: 210.469.000**<br>**Responsible authority: Molise Region** |
| **Funding rate (%)** | 50% |
| **Maximum funding (€)** | Related to the type of measure (100000-300000) |
| **Beneficiaries** | Public Bodies, SMEs, no profit associations. |
| **Area of application** | Regional |
| **Feasibility** | The financial tool suites for the greenhouses for many aspects and through many measures such as: innovation, green economy, circular |

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| | economy, young entrepreneurship. |

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| **Identified Financial tool / scheme** | ROP ERDF/ESF 2014/2020 |
| **Short description of the tool/scheme (name, objectives, budget, responsible authority)** | NAME: Regional Operational Programme With Decision C (2015) 4999 final, the European Commission approved the Operational Program of the European Regional Development Fund (ERDF) and the European Social Fund (ESF) for the 2014/2020 period. **EUR 153 million** for the overall financial allocation, designed to support growth and the regional economy. **Responsible Authority**: Molise Region |
| **Funding rate (%)** | Related to the measure approximately 50% |
| **Maximum funding (€)** | Related to the type of measure (100000-300000) |
| **Beneficiaries** | Public Bodies, SMEs, no profit associations. |
| **Area of application** | Regional |
| **Feasibility** | The financial tool suites for the greenhouses for many aspects and through many measures such as: innovation, circular economy, young entrepreneurship. |

### *2.2.5 PACA region, France*

| | |
|---|---|
| **Identified Financial tool / scheme** | ***The Heat Fund "ADEME"*** |
| **Short description of the tool/scheme (name, objectives, budget, responsible authority)** | The French government has introduced a "heat fund" (Fonds Chaleur) in order to support the production of heat through renewable energy plants (Art. 19 §4, Loi n° 2009-967). During the period between 2009 and 2013, the heat fund was endowed with a budget amounting to € 1.2 billion. In April 2015, the Minister of Energy Ségolène Royal announced that the fund credits shall be increased to € 420 million by 2017. |

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| | The administration of the "heat fund" was delegated to the Environment and Energy Management Agency (ADEME-Agence de Développement de l´Environnement et de Maitrise de l´Énergie). The budget of the "heat fund" is divided into two subvention types: on the one hand, a national call for tenders, which is published yearly for large biomass plants, on the other hand the support of other renewable energy projects is administered on a regional level by the regional agencies of the ADEME. |
| **Funding rate (%)** | Aid defined on case-by-case analysis |
| **Maximum funding (€)** | For the period 2009-2016 1.6 billion euros were allocated for 4000 installation |
| **Beneficiaries** | Collective housing, communities and enterprises. |
| **Area of application** | National |
| **Feasibility** | This fund is applicable for the construction of innovative greenhouses if it concerns energy efficiency. |

| **Identified Financial tool / scheme** | **European Agricultural Fund for Rural Development** |
|---|---|
| **Short description of the tool/scheme (name, objectives, budget, responsible authority)** | The EAFRD is dedicated to rural development, the second pillar of the Common Agricultural Policy. It is complementary to market and income support policies and actions under economic and social cohesion policies.<br>This fund is implemented in France through a national program that includes regional components. |
| **Funding rate (%)** | 40% |
| **Maximum funding (€)** | € 476 million EUR invested in the Provence-Alpes-Côte d'Azur region via EAFRD over the period 2014-2020.<br>Max 3M€ per Project |
| **Beneficiaries** | Research entities, SMEs |
| **Area of application** | Regional |
| **Feasibility** | The EAFRD finances:<br>- The competitiveness of the agricultural and forestry sectors<br>- The environment and the landscape<br>- Quality of life in rural areas<br>- Diversification of the rural economy<br><br>This fund is applicable for the construction of innovative |

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| | greenhouses |

| **Identified Financial tool / scheme** | **European Territorial Cooperation** |
|---|---|
| **Short description of the tool/scheme (name, objectives, budget, responsible authority)** | As part of its support for European regions, the European Union promotes cooperation between countries. European Territorial Cooperation (ETC) is divided into three parts:<br><br>- Cross-border cooperation: project holders come from countries with common borders, both terrestrial and maritime<br>- Transnational cooperation: projects are carried out on the scale of large European areas (Alpine Space, Mediterranean Space, etc.)<br>- Interregional cooperation: projects can be carried out by project promoters from all the Member States, and aim at promoting networking, exchange of experiences and good practices between different European countries.<br>Due to its geographical position, the Provence-Alpes-Côte-D'azur region is very involved in European territorial cooperation. For the period 2014-2020, it participates in 5 cooperation programs. |
| **Funding rate (%)** | 85% |
| **Maximum funding (€)** | Up to 3 M |
| **Beneficiaries** | Research, SME's, territorial authorities |
| **Area of application** | Regional |
| **Feasibility** | Different thematic: Rural, urban and coastal development, employment, public services, transport, environment, health, culture and tourism, etc<br><br>This fund is applicable for the construction of innovative greenhouses |

| **Identified Financial tool / scheme** | **Regional Innovation Fund (RIF)** |
|---|---|
| **Short description of the tool/scheme (name, objectives, budget,** | The Provence-Alpes-Côte d'Azur Regional Innovation Fund is combining regional and national (BPI-France) funding schemes. It provides a significant leverage effect on financing |

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| **responsible authority)** | collaborative R & D projects between regional SMEs and academic research structures.<br>The FRI PACA system brings together the three historical tools for financing collaborative R & D, experimental development and innovation projects, involving companies and public research laboratories:<br><br>- Call for Research Projects Finalized "APRF";<br>- National calls for projects based on an interministerial fund (Fonds Unique Interministériel "FUI");<br>- Financing the experimental development and innovation projects used in the framework of the PACA Labs system for its "Innovate with the Market" and "Emergence" components |
| **Funding rate (%)** | 70%-50% |
| **Maximum funding (€)** | 450 000 |
| **Beneficiaries** | SME, large companies, territorial authorities and research laboratories in PACA (public laboratories, higher education institutions, technical centers, etc.) |
| **Area of application** | Regional |
| **Feasibility** | This fund is applicable for the construction of innovative greenhouses.<br>It concerns projects related to the priority Strategic Activity Areas of the Regional Innovation Strategy (including a focus on "health and well-being"). |

### *2.2.6 Murcia Region, Spain*

**1. Publicly co-funded venture capital funds**

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| **Identified Financial tool / scheme** | 1.Publicly co-funded venture capital funds |
| **Short description of the tool/scheme (name, objectives, budget, responsible authority)** | The Ministry of Economy and Competitiveness has created the Centre for Industrial Technological Development (CDTI), a Public Business Entity that channels the funding and support applications for national and international RDi projects of Spanish companies. The CDTI has one venture capital funding line at the moment:<br>- INNVIERTE program, which is intending to promote public-private venture capital investment designed for the enterprise and technological SME growth and internationalisation. |
| **Funding rate (%)** | The amounts are adjusted to each investment need depending on the stage of growth in which the company is and its specific needs. |
| **Maximum funding (€)** | The amounts are adjusted to each investment need depending on the stage of growth in which the company is and its specific needs. |
| **Beneficiaries** | EnterpriseS and technological SME |
| **Area of application** | National |
| **Feasibility** | The financial scheme/tool is applicable for the construction of innovative greenhouses . |

**2. Public guarantee funds**

| | |
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| **Identified Financial tool / scheme** | 2. Public guarantee funds |
| **Short description of the tool/scheme (name, objectives, budget, responsible** | The national sub-programme for Business RDI aims to increase, extend |

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| **authority)** | and systemise investments and the execution of R&D activities and to promote innovation as part of the companies' competitive strategy. To that purpose, the CDTI supports RDI Projects that may be executed by one or more companies (individual and consortium projects). The projects originate from business initiatives, also including those carried out by regional business consortiums and multilateral and bilateral international technological collaborations. |
| **Funding rate (%)** | The funding modality for projects is Partially Reimbursable Aid, with financial cover of up to 75% of the total approved budget which, by way of exception, may amount to up to 85%. Such aid may comprise a non-reimbursable tranche (NRT) depending on the characteristics of the project and the beneficiary |
| **Maximum funding (€)** | 500.000 € - 1.000.000€ |
| **Beneficiaries** | Enterprises and SME |
| **Area of application** | National |
| **Feasibility** | The financial scheme/tool is applicable for the construction of innovative greenhouses as pilot plants, not for industrial production |

### 3. R&D funding

| | |
|---|---|
| **Identified Financial tool / scheme** | 3.R&D funding |
| **Short description of the tool/scheme (name, objectives, budget, responsible authority)** | The National sub-programme for knowledge generation defines key priorities to promote, by means of highly competitive tenders, the execution of basic research projects and other |

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| | activities, the results of which represent a significant advance in knowledge for developing new approaches and methodologies otherwise unachievable. - The Technology Fund is a special item in European Union FEDER funds allocated to promoting business RDI in Spain. It is mobilised through the financial instruments of the CDTI and is assigned to the proposals submitted according to the availability of funds in the Autonomous Region where the project is to be developed. National Plan for Energy Savings and Efficiency 2011-2020 National Plan for Waste Management (Pemar) 2016-2022 |
| **Funding rate (%)** | The funding modality for projects is Partially Reimbursable<br>Aid, with financial cover of up to 95% of the total approved budget . |
| **Maximum funding (€)** | 500.000 € - 1.000.000€ |
| **Beneficiaries** | Enterprises and SME |
| **Area of application** | National |
| **Feasibility** | The financial scheme/tool is applicable for the construction of innovative greenhouses as pilot plants, not for industrial production |

### 4. R&D infrastructure

| | |
|---|---|
| **Identified Financial tool / scheme** | 4.R&D infrastructure |
| **Short description of the tool/scheme (name, objectives, budget, responsible authority)** | The national sub -programme for scientific and technological infrastructures and equipment aims to provide, maintain and update scientific and technical infrastructures for them to be accessible by all stakeholders of the Spanish System for Science, Technology and Innovation and facilitate high quality scientific -technical research as well as the development of |

| | |
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| | highly competitive R&D business activities. |
| **Funding rate (%)** | 80% |
| **Maximum funding (€)** | 5.000.000 € |
| **Beneficiaries** | Public R&D entities |
| **Area of application** | National |
| **Feasibility** | The financial scheme/tool is applicable for the construction of innovative greenhouses as pilot plants. |

# 3. Assessment of the findings

## *3.1 Methodology for the assessment of the financial schemes*

The financial schemes and tools, identified in each region, are evaluated based on the following features:

| **Indicator/Scoring** | **1** | **2** | **3** | **4** | **5** |
|---|---|---|---|---|---|
| % of funding | 0,1-10% | 10,1-20% | 20,1-30% | 30,1-40% | 40,1% and above |
| Availability to beneficiaries | Once per 3 years | Once per 2 years | Annually | Bi-annually | Multiple times per year |
| Maximum amount of funding (in euro) | Up to 50.000 | 50.001-100.000 | 100.001-300.000 | 300.001-500.000 | Above 500.000 |
| Advance payment | 0-10% | 11-15% | 16-20% | 21-40% | Above 40% |
| Years until full payment | Above 6 | 6 | 5 | 4 | <3 |

## *3.2 Assessment of the identified schemes/tools*

This chapter evaluates the identified schemes/tools based on the matrix of chapter 3.1.

### *3.2.1 Region of Berat, Albania*

| **Financial Tool/ Scheme** | **Evaluation indicator** (Low 1-High 5) | | | | | **Total Score** |
|---|---|---|---|---|---|---|
| | % of funding | Availability to Beneficiaries | Maximum Amount of Funding | Advance payment | Years until full payment | |
| Interreg IPA II cross-border cooperation programme "Greece - Albania 2014- | **5** | **3** | **4** | **1** | **5** | **18** |

| Financial Tool/ Scheme | Evaluation indicator (Low 1-High 5) | | | | | Total Score |
|---|---|---|---|---|---|---|
| | % of funding | Availability to Beneficiaries | Maximum Amount of Funding | Advance payment | Years until full payment | |
| 2020" | | | | | | |
| The "Balkan-Mediterranean 2014-2020" transnational cooperation program (TNCP) | **4** | **1** | **4** | **1** | **5** | **15** |
| Interreg V – B Mediterranean (MED) Cooperation Program 2014-2020 | **5** | **3** | **3** | **1** | **5** | **17** |

### *3.2.2 Cyprus*

| Financial Tool/ Scheme | Evaluation indicator (Low 1-High 5) | | | | | Total Score |
|---|---|---|---|---|---|---|
| | % of funding | Availability to Beneficiaries | Maximum Amount of Funding | Advance payment | Years until full payment | |
| *Program RESTART 2016-2020* | 5 | 4 | 4 | 3 | 3 | 18 |
| *Eurostars Cyprus, Specific Action of the «EUREKA Cyprus» Programme* | 4 | 4 | 4 | 3 | 3 | 18 |

| | | | | | | |
|---|---|---|---|---|---|---|
| *Rural Development Programme (RDP) 2014-2020* | 4 | 5 | 4 | 3 | 3 | 19 |

### *3.2.3 Region of Thessaly, Greece*

| **Financial Tool/ Scheme** | **Evaluation indicator** (Low 1-High 5) | | | | | **Total Score** |
|---|---|---|---|---|---|---|
| | % of funding | Availability to Beneficiaries | Maximum Amount of Funding | Advance payment | Years until full payment | |
| *1.ROP Thessaly 2014-2020* | 5 | 4 | 4 | 3 | 3 | 18 |
| *2.Operational Programme on Competitiveness, Entrepreneurship and Innovation under the new National Strategic Reference Framework (2014-2020)* | 5 | 3 | 4 | 3 | 3 | 18 |
| *3. The New Investment Law 4399/2016* | 3 | 4 | 4 | 4 | 3 | 18 |
| 4. National Fund for Entrepreneurship and Development (ETEAN) | 3 | 3 | 3 | 3 | 3 | 15 |

### *3.2.4 Region of Molise, Italy*

| **Financial Tool/ Scheme** | **Evaluation indicator** (Low 1-High 5) | | | | | **Total Score** |
|---|---|---|---|---|---|---|
| | % of funding | Availability to Beneficiaries | Maximum Amount of Funding | Advance payment | Years until full payment | |
| *Rural Development Programme 2014/2020 of Molise Region* | 5 | 1 | 3 | 2 | 3 | 14 |
| *Regional Operational Programme (ERDF – ESF 2014/2020) of Molise Region* | 5 | 1 | 2 | 3 | 5 | 16 |

### *3.2.5 PACA region, France*

| **Financial Tool/ Scheme** | **Evaluation indicator** (Low 1-High 5) | | | | | **Total Score** |
|---|---|---|---|---|---|---|
| | % of funding | Availability to Beneficiaries | Maximum Amount of Funding | Advance payment | Years until full payment | |
| The Heat Fund "ADEME" | 5 | 3 | 2 | 5 | 5 | 20 |
| European Agricultural Fund for Rural Development | 4 | 3 | 5 | 5 | 5 | 22 |
| European Territorial Cooperation | 5 | 5 | 5 | 5 | 5 | 25 |
| Regional Innovation Fund (RIF) | 5 | 1 | 4 | 5 | 5 | 20 |

### *3.2.6 Murcia region, Spain*

| **Financial Tool/ Scheme** | **Evaluation indicator** (Low 1-High 5) | | | | | **Total Score** |
|---|---|---|---|---|---|---|
| | % of funding | Availability to Beneficiaries | Maximum Amount of Funding | Advance payment | Years until full payment | |
| 1.Publicly co-funded venture capital funds | **3** | **3** | **3** | **3** | **3** | **15** |
| 2.Public guarantee funds | **3** | **3** | **3** | **3** | **3** | **15** |
| 3.R&D funding | **3** | **3** | **3** | **3** | **3** | **15** |
| 4.R&D infrastructure | **3** | **3** | **3** | **3** | **3** | **15** |
| | | | | | | |

### *3.3 Analysis of the assessment*

#### *3.3.1 Region of Berat, Albania*

There is not thorough data and exhaustive information about the percentage of GDP that the Albania government bounds to the development of eco-innovative technologies. According to the information provided by the World Bank on the state of advancement of Albanian investments on research and technologies, the country has undertaken a number of strategic reforms and policies to boost the development of a research and development system, in order to catch up with other Europeans countries in innovation and technological advancements. In fact, since 2006 when the country has signed the Stabilization and Association Agreement to pave the way to join the EU the country reorganized the Academy of Sciences to reflect the model used by many other European countries. Moreover, the higher education autonomy has been improved; the curricula and education standards have been revised; monitoring and quality auditing mechanisms have been adopted; and higher education public institutions have been integrated with research institutes to enhance research capabilities. The first national strategy for innovation has been implemented in 2009. The following year, in March 2010, it has been created the Agency for Research, Technology and Innovation (ARTI) under the national strategy to modernize the operational structure and governance of innovative centers with the aim to foster the technological transfer. However, as it has been pointed out by the WB some issues still need to be addressed. In fact, the country lacks of human capital, the level of public financing remains low and the governance of research systems is weak. The number of national researchers and the quality of research institute is poor. Experts, in fact, often lack of the adequate specialization, of the sufficient amount of funding to produce high-quality research and studies or of appropriate structures where conducing researches. Therefore, the country should implement a more effective strategy to boost the research and development sector in order to attract more international investments and to reverse the migration trend with the aim to provide a more favorable environment even for the Albanian researchers that went to study abroad. Attracting qualified people into the Albanian Research System represents a good opportunity for the country to create scientific excellence in key research areas, to contain the brain drain phenomena and to strengthen links between science and companies to foster innovation as a basis for future growth and job creation. The enhancement of the R&D system will have positive repercussion for Albania in catching up with other European countries and in the creation of value added goods and services that will help to escape from the middle-income country status. The percentage of the government funding for R&D remains low, about 0,2%. Even the private investments in this sector are very limited; companies in the country are mostly SMEs characterized by labor-intensive and low-cost production strategy.

The country mainly relies on European Union funds to reach higher level of competitiveness in this sector. The first financial scheme identified provides funds for the environmental protections and the climate change mitigation in the country, however there are no specific measures related to the construction of sustainable greenhouses. The program is financed by EU that provides 85% of the total budget and by the national government that provides the remaining 15% of the total budget allocation. The second financial tool identified TNCP presents two priority axis. The aim of the first axis is to promote entrepreneurship, facilitating the economic exploitation of new ideas, fostering the creation of new firms, supporting the capacity of SMEs to grow in regional, national and international markets, and to engage in innovation processes. The selected investment priorities for the second axis are the conservation, the protection, the promotion and the development of natural and cultural heritage and the promotion of innovative technologies to improve environmental protection and resource efficiency in the waste sector, water sector and with regard to soil, or to reduce air pollution. The second development axis is particularly concerned with the development of new technologies in SMEs and groups of enterprises. A particular attention is devoted on the technological transfer and on the know-how exchange among research centers and institutions and actors small and medium enterprises, in order to accelerate the advancement of new technologies and improve the market performances of firms. Albeit the concerns on the environmental protection and on the know-how exchange and the technological advancements of firms, the program does not provide specific funds for eco-innovation in the greenhouse sector. The third financial scheme identified is the Mediterranean Cooperation Program; it is a transnational program that includes 57 regions from 10 different EU countries and 3 candidate countries. The program involves actors from the quadruple helix such as SMEs, research institutes, non-governmental organizations, public and public equivalent bodies dealing with innovation. It is strictly related to the development of cutting-edge technologies in agriculture with a particular focus on the introduction of innovative technologies in greenhouses.

### *3.3.2 Cyprus*

Cyprus is already experiencing the impacts of climate change. Impacts include extensive episodes of droughts and the relevant impact on water supply, biodiversity and forest fires. Climate change is identified by the government as an area with significant risks (Department of the Environment, 2018)[9]. Other environmental issues

[9] Department of the Environment 2018, History. Available at:

include illegal hunting, invasive species and land use change. It is forecasted that the maximum temperatures exceeding 38˚C will occur for additional two weeks per year. This will add a significant pressure to the already hot summers in the island, not only in terms of environmental impacts but will also increase the demand of energy for cooling.

In terms of socio-economic issues, several elements impose pressures on the environment. For example, urbanisation and the increasing tourist inflows and infrastructure (e.g. highways and rural roads) create a fragmentation of natural areas and loss of habitats. The island's energy needs are almost exclusively covered by oil imports (but is expected to be partially replaced by recently discovered natural reserves). In 2015, the energy deficit in the country corresponded to 4.1% of GDP (European Commission 2017)[10]. Renewable energy (wind, solar and biomass) covers only 6.5% of the primary energy gross inland consumption. The heavy reliance on road transport is also responsible for 25% of the energy consumption and contributes to air pollution. An annual reduction on the energy consumption in transport of approximately 0.4% has been observed during 2005 – 2015 (European Commission 2017). Nevertheless, this decrease concerns freight transport that was decreased by 40%. On the contrary, the energy consumption of passenger transport increased by 26%. In addition, the steady increase in waste production that has been caused by tourism and the significant economic development of the last decades. The considerable volume of uncontrolled disposal also consists of a significant pressure, especially when considering the small size of the country (Cyprus Strategic Development Plan, 2007)[11].

Concerning waste management, the per capita municipal solid waste generation is the second highest in the EU (445 kg/cap in 2016), well above the EU average of 476 kg/cap (Statistical Service of the Republic of Cyprus, 2016)[12]. The waste management system in Cyprus is characterised by the lack of appropriate facilities to treat waste or hazardous waste resulting in high levels of landfilling (78.8% in 2015). Nevertheless, more recently, the amounts of residual waste have been reduced due to increased levels of separate collection of mainly packaging and WEEE and energy recovery from

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http://www.moa.gov.cy/moa/environment/environmentnew.nsf/page03_en/page03_en?OpenDocument

[10] ibid

[11] Cyprus Strategic Development Plan, 2007. Available at: http://www.structuralfunds.org.cy/default.aspx?articleID=784

[12] Statistical Service of the Republic of Cyprus, 2016, Latest Figures: Generation and Treatment of Municipal Solid Waste, 2016

waste. Nevertheless, in 2015, only 14.1% of the municipal waste was sorted for recycling and 4% for composting.

In the R&D sector, Cyprus improved its position in the Research and Innovation Observatory and moved from the 60th place in the world rankings in 2014 to 47th place in 2015 (JRC, 2017)[13]. Enterprises lack the size and capacity to systematically develop innovative processes and new products, while strategically it is more convenient for them to import innovation from abroad.

Similar to other southern European countries, Cyprus has been affected by the European debt crisis. The economic problems climaxed in 2013 with the country requiring an EU-IMF financial bailout. The dampened economic environment negatively affected public and private investment in eco-innovation. Between 2009 and 2012, the GDP decreased by 2 % annually, and further decreased by almost 6% in 2013. Nevertheless, in 2016 the GPD increased by 2.8% and unemployment dropped from 15.6% in 2015 to 10.5% in 2017 (Eurostat, 2018)[14].

Policy and funding measures and mechanisms promoting eco-innovative research in Cyprus still largely depend on co-financing through the Structural Funds. The majority of these measures address the development of new research infrastructure, the enhancement of collaborations among research organisations and the private sector, the facilitation of technology transfer, was well as the strengthening and enhancement of training, career development and mobility of researchers. The National Policy Statement for the Enhancement of the Entrepreneurial Ecosystem supports the general framework conditions for research in businesses. The statement amongst others puts forward the reform of the corporate tax system, enhanced governance for the creation of university spin-offs, stronger intellectual property legislation, and using the Structural Funds in a more targeted manner.

[13] JRC, (2017), Research and Innovation Observatory country report 2016: Cyprus.

[14] Eurostat, 2018, Harmonised Unemployment Rate. Available at: http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&language=en&pcode=teilm020&tableSelection=1&plugin=1

### *3.3.3 Region of Thessaly, Greece*

Greece continues to focus its policies on the promotion of renewable energies, energy efficiency measures and the new policy on waste management, which can also promote eco-innovations. The aim of the country is to derive 20% of final energy consumption from RES by 2020.

The National Strategic Reference Framework (NSRF) is expected to allocate approximately € 5.18 billion for the period 2014-2020 on activities relating to the environment and another € 1.2 billion is expected to be allocated on the objective 'Strengthening Research, Technological Development and Innovation'. Research is expected to be supported directly through the funding of actions supporting innovations in businesses. In addition as mentioned Operational Programme on Competitiveness, Entrepreneurship and Innovation will allocate at least 55 million EUR to support eco-innovation.

The Action Plan for the Implementation of the National Strategy for Research, Technological Development and Innovation for the period 2015-2021 (Action Plan) was published in 2014 and set the framework for the support of the Greek Government on research and innovation, and the promotion and strengthening the competitiveness of businesses through innovation.

The National Fund for Entrepreneurship and Development (ETEAN) was founded in 2011 (Law 3912/2011) in order to support enterprises, particularly small, medium, and innovative enterprises. ETEAN is co-funded by the Operational Programme 'Competitiveness and Entrepreneurship' and other NSRF programmes, supported by the European Regional Development Fund and the European Fisheries Fund. Amongst its priority areas, the Fund aims to support business in the fields of sustainability, energy efficiency (especially in the built environment) and renewable energies. The scheme also supports activities that relate to the upgrade of energy efficiency in households.

There are several barriers related to political, institutional, cultural, social and economic aspects that prevent the development of eco-innovation in the country.

Compared to 2015, Greece continues to lack a clear and cohesive framework for the support of eco-innovation and eco-industries despite the improvement through the 2014 Action Plan for the Implementation of the National Strategy for Research, Technological Development and Innovation for the period 2015-2021, which promotes specific activities in relation to eco-innovation. Under the Action Plan, efforts are directed towards industrial waste management, anti-pollution technologies and industrial symbiosis, climate change mitigation, access to environmental information and mitigation of natural disasters.

Issues related to malpractices by local authorities and limited enforcement of laws by national authorities continue to exist. The long-lasting deterioration of the economy

has further compounded these problems as the penury of resources makes any kind of systematic funding for eco-innovation unrealistic. Austerity policies have had a major impact on public funding leading to stagnation in terms of R&D expenses and delays in payments. Meanwhile, venture capital for eco-innovations is not easily available especially after the imposition of capital controls in July 2015, with most funding coming from EU Structural Funds.

In terms of competitiveness, the trade balance of high- and medium-tech products is negative and this prevents by default all types of technological innovation (Innovation Union 2014). The poor performance on technological innovation is also demonstrated by the low number of patent applications. The economic downturn, together with structural problems and bureaucratic obstacles has forced companies to prefer investments with low risks and short-term return over knowledge-based activities where by default the risks are higher and the return period longer. The small size of Greek companies also acts as a deterrent to further developing and commercialising innovations. Small companies may be more flexible and adapt at seizing innovation opportunities but ultimately a sustainable national framework requires synergy and economies of some scale. Nevertheless, as highlighted in chapter 1 only 3.5% of enterprises plan to perform investments.

On the administrative side, it is an often repeated complaint that Greece's complex bureaucratic stipulations (despite the progress achieved in the last years) dissuade actors and investors from developing eco-innovations (Vlyssides, 2014. Panayotakopoulos, 2014). Moreover, the regulatory framework changes frequently thus limiting the ability of involved actors to plan and organise investments.

Research in Greece relies to a large extent on external funding, namely, the EU structural Funds and EU research funds (e.g. Horizon 2020). The dependence of Greece on external funds indicates the difficulty of the country to finance research (either through public funding or private sector investment) due to the deterioration of the economy. As regards the internal funding, in 2016 42.5% of funding derives from public funding whereas only 39.9% come from private funds. In relation to the EU research funds, Greece has been relatively successful in the participation in the FP7, in comparison to the EU average, but the success rate of the applications for funding remain relatively low.

Finally, there remain social barriers towards eco-innovation mostly related to public attitudes and unawareness of the benefits of innovation (especially in the area of energy efficiency in the built environment). These sometimes translate into outright distrust of change, especially in the current economic and political climate. (Knight and Bell, 2013).

### *3.3.4 Region of Molise, Italy*

It's not easy to find data and percentage related to the eco-innovation in our Country. Most of the information are taken from study cases or researches made by experts and they show clearly how difficult is to find data because of the transversal nature of the topic. Nevertheless, most of the eco-innovation funds are related to European funds (ROP and RDP) and the main beneficiaries and areas that benefited most from the increase in eco-innovation are waste management and sustainable transport, while the areas that proved to be the most in difficulty are those of Research & Development. According to the Observatory's report, in this sector, investments appear to be substantially lower than the European average for both the private sector (1.29% in Italy versus 2.03% average in Europe) and for the public sector, where the share of investments in environmental research accounts for 6.5% of all public spending. In the waste management sector, there is a marked increase in the separate collection and recycling of various materials (from the textile sector to batteries); among many, a leading initiative is the adherence of Italy to Weelabex, a project conducted at European level whose goal is the creation of rules and standards for the management of waste from electrical and electronic equipment . Related to this sector, it is also the development of the methodology Romeo (Recovery of metals by hydrometallurgy) by Enea (the National Agency for New Technologies, Energy and Sustainable Development) which aims to recover raw materials of high value (gold, silver, tin, copper) from the Raee.

In the transport sector, innovations mostly involve private transport. Sales of vehicles powered by alternative energy sources saw an increase of 15.3% compared to 2013. Furthermore, according to the Ministerial Decree of 10 October 2014, the production and use of fuels from waste and biological waste are incentivized. With regard to this aspect, in the fuel sector the introduction of green diesel, the result of over 10 years of study and development of Ecofining ™ technology, at the Eni plants in Porto Marghera (Venice), is all Italian. This new technology allows the hydrogenation of various types of vegetable oils thus obtaining a fuel fully compatible with the fossil fuel to which it is mixed, thus allowing a reduction in air pollution.

Among the main barriers to the adoption of eco-innovation, the economic-structural ones and those related to education and the labor market are relevant. With regard to the former, there is still difficulty in establishing a real competition in those markets that have been privatized; often both the regulation and the costs of using the network make it difficult for new companies to enter the market. Linked to this first aspect, it is also important to consider that the Italian entrepreneurial fabric is constituted for most of small and medium-sized enterprises that by definition have more difficult access to credit (the risk to lenders may be much higher) and whose

production scale can make it difficult to sustain the high costs associated with the research and development of new products and processes.

The second major brake on growth and the development of eco-innovation is identified in the lack of adequate skills between human capital

### *3.3.5 PACA region, France*

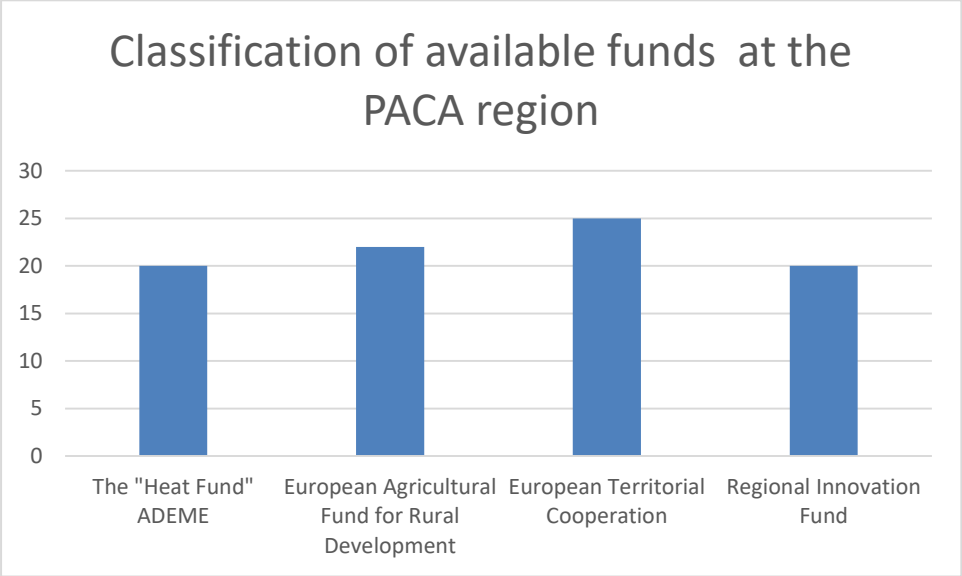


Diagram 1. Classification of available funds at the PACA region

### *3.3.6 Murcia Region, Spain*

In general terms, environmental public policy has been the most developed at the regional level. The sector that received the most economic support in the form of grants or subsidies and support for regulatory development, has received by difference, is the sector of renewable energy, efficiency and energy saving.

It is important to highlight and mention the presence of programs and aid plans, together with an important component co-financing by the European Union, present in the various calls for aid and executed grants, in all or almost all the Autonomous Communities, in particular, highlights the Fund European Regional Development (ERDF).

Spain and, in particular, its Autonomous Communities, have a high degree of dependence on European economic funding, for the development and promotion of eco-innovation.

On the other hand, it cannot be denied that the period of economic crisis that has affected Spain has influenced when properly implementing public policies to promote eco-innovation with greater degree of activity and effectiveness.

# 4. Conclusions

**Region of Berat, Albania**

The Research and Development System in Albania presents some important issues that have to be addressed. The limited national funding for eco-innovative investments for example represents one of the main obstacles in the creation or implementation of effective strategies that can help the country to catch up with other European countries. Despite in the last decade some important reforms and measures have been undertaken the percentage of GDP bounded to R&D sector is still poor, less than 2%. The country mainly relies on EU funds and the private sector investment on state-of-the-art technologies is almost inexistent. It is not possible to retrieve thorough data regarding the percentage of the GDP used for eco-innovation; however, it must be below the 2%. The country shall undertake more initiatives in order to attract researchers and investors and also to foster the R&D system. The benefits that can derive from the adoption of a national strategy that can enhance the production of eco-innovative technologies are multiple, from the job creation and the optimum exploitation of natural resources to the reduction of the greenhouses' gasses. The adoption of a national strategy that can enhance the production of eco-innovative technologies will also contribute to EU strategies such as Circular Economy and Green Growth and it will improve the quality of life of the citizens, creating also better economic conditions.

**Cyprus**

Despite significant improvement, Cyprus continues to perform poorly in eco-innovation. In 2017, the country scored only 45 (EU average = 100), which is a slight improvement compared to the score of 43 in the 2015 assessment. This places the country just second last in the EU28 ranking of eco-innovative countries. Cyprus is heavily behind the EU28 average in eco-innovation inputs and activities, socio-economic outputs and resource efficiency outcomes. It performs above the EU28 average in Eco-innovation outputs. Eco-innovation in Cyprus is predominantly produced by individual actors – research institutes or enterprises. As such, there are no distinct and mature eco-innovation sectors. Given the country's rich natural capital and inaccessibility to the energy grid of other countries, new developments in renewable energies could also promote eco-innovation activities. Eco-innovation in the field of energy is also driven by efforts to increase energy efficiency.

The agricultural and food industries are also contributing to eco-innovative solutions. Additionally, a number of EC funded research and innovation projects in the field of eco-innovation are currently under implementation. In terms of eco-innovation drivers, there is a wide range of EC supported funding opportunities for R&D that

include eco-innovations. With a total budget of approximately EUR 100 million, the programme RESTART acts as a significant support of research. The country also provides numerous tools to enhance access to information that is vital to increase innovation and growth. Regarding barriers, the R&D sector in the country is relatively new as it dates from the mid-90s.

As such, the system is still fragmented with a lack of coordination between the different stakeholders. The governance of research is lacking whereas the interface between research and business is inadequate. In addition, there is an inadequate evaluation culture to monitor research and increase its effectiveness.

**Region of Thessaly, Greece**

Greece benefits from its significant natural capital in renewable energies (solar, wind, tidal), growth in green and alternative tourism and innovation in agriculture and the food industry. The country has a small number of leading research institutions that can contribute in developing an innovation-driven economy (Dianeosis, 2016). A significant number of small and medium ICT and high-tech companies and start-ups can also help in supporting R&D. In addition, many Greek researchers have migrated in third country.

Greece is below the EU average with 0.99% of GDP spent on R&D activities 2016 (EU average 2.03%) (National Documentation Centre, 2017). Despite the austerity measures, a slight increase on R&D expenditure was achieved compared to 2015 (from 0.92%). Nevertheless, this share increased by 0.6% in the period 2007-2012 which indicates that the country is on its way to catch up (Innovation Union 2014). This improvement is also indicated by the slight increase the eco-innovation input index. Greece is also well placed regarding the eco-innovation related publications (which reached 27.45 publications per million inhabitants with an EU average of 20.53 publications). In this context, the economic downturn might act as an opportunity to move towards a knowledge-based economy.

**Region of Molise, Italy**

Ultimately, the picture of eco-innovation in Italy presents lights and shadows: if it is true that many fundamental elements are already present, that some companies are able to bright and produce eco-innovations of international value, that on this theme there is an increasing commitment from big companies and from the side of the general public ,it is equally true that, to make the real leap in quality and become European leaders eco-innovation requires a clear willingness to invest in research in order to dedicate significant resources to these economic issues.

**PACA region, France**

In PACA, there are several support mechanisms for innovation; and the region has also created a regional strategy for innovation.
The eco-industry fully fits within the new smart specialization strategy that the PACA region is developing.
Indeed, eco-industries intersect at least 3 of the 5 Priority Strategic Business Areas of the region: Energy Transition / Energy Efficiency of Buildings, Risks, Safety, Security and smart and sustainable Mobility.
In 2006, the PACA region adopted its new Regional Economic Development Plan "PRIDES". They support a comprehensive approach to business competitiveness, not limited to the technology innovation. The social, the environment, the reinforced use of information and communication technologies, are considered. The PRIDES label is formalized by a contract of objectives signed with the Region, together with an annual financial agreement which provides operating aid and the realization of cooperative projects by its members.

**Murcia region, Spain**

There is no use in the efforts made to execute plans, programs, strategies or public projects, if the real social needs are not addressed, if the necessary resources are not allocated to solve effective way public problems and if there are no public personnel or political positions truly qualified and competent for this task and, in particular, with regard to eco-innovation, it is necessary a greater level of specialization, since it is essential, before executing a public policy in this sense, know the barriers, limitations, needs, the best conditions, the strengths, the points weak sectors, areas or regions, in which you must work to develop an effective management and promotion of eco-innovation through the use of public policies and, in the subject at hand, directed and focused on the Spanish business sector.