# Circular economy in rural areas comparative study among participant countries

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Circular economy in rural areas comparative study among regions from Italy, Spain, Greece and Romania)

# Chapter 6: Implementation of circular economy in rural area of Spain and Murcia Province

## 6.1 Circular economy in Spain

The concept of circular economy is widely used in the world of environmental research and sustainable economy. In fact, a recent study by Kirchherr et al. (2017) brought together 114 definitions that have given different scholars to the circular economy, concluding that the circular economy is the combination of reducing, reusing and recycling activities and aims to achieve economic and environmental prosperity.

In the case of Spain, the government is working with the Ministry of Ecological Transition in collaboration with the other ministries involved, the so-called Spanish Strategy for the Circular Economy.

The latest draft of public information on the Spanish strategy for the circular economy, which was published in February 2018, explains the strategies to be followed by Spain to make better use of the resources, materials and products available and, in short, to achieve more innovative and sustainable development and growth, and the importance of the circular economy in achieving this transformation.

These strategies have a long-term vision, while it is in the short term that the various action plans are implemented, which will be adapted to new developments and circumstances as they arise. This framework of actions is composed of the following axes: production, consumption, waste management, secondary raw materials, water reuse, research, innovation and competitiveness, awareness, training and employment. In addition, it should be added that the Ministry for Ecological Transition has established mechanisms to follow up and monitor the action plan and the presentation of an annual progress report.

Currently, the first action plan 2018-2020 is being taken as a reference and, despite the fact that the Spanish strategy of circular economy aims to become a reference for all public administrations, companies and citizens, it has some priority sectors such as construction and demolition, agri-food, industrial, consumer goods and tourism.

Among the main objectives to achieve the transition to a circular economy we can mention the following: Protecting the environment, reducing the use of non-renewable resources and reusing waste from a given production as secondary raw materials, prolonging the life of products, promoting innovation and efficiency in production processes, encouraging the use of reliable indicators that allow us to know the degree of success of activities that promote the circular economy and the creation of quality jobs related to such activities.

At a particular level, there are many research groups in the various universities and numerous entities and organizations - Circular Economy Club Spain, PROTECMA, COTEC, Foundation for the Circular Economy, etc. - that are developing studies and projects related to the importance of implementing a circular economy to achieve more sustainable development. However, at present there is still no specific methodology that is sufficiently elaborated and agreed upon for the monitoring and evaluation of the processes of the circular economy. Moreover, according to COTEC (2019), the indicator systems are not yet fully developed,

especially those related to the prevention of excessive use of raw materials, eco-design and eco-innovation.

### 6.1.1 Territorial structure and rural area presentation

The Spanish constitutional system establishes a system of recognition of territorial autonomy that legally and administratively is materialized in a profound decentralization to the point that the effective functioning of the State is similar in many aspects to that of federal states. Territorially, the system of decentralization is organized in 17 Autonomous Communities (CCAA from now on); 2 cities with a statute of autonomy (Ceuta and Melilla); and 8125 local entities. The Autonomous Communities have political and financial autonomy. This implies the attribution of competence to approve laws in those matters in which their Statutes recognize it, as well as to carry out executive tasks that the Statutes themselves assign to them.

With regard to the territorial structure, if we compare it with the countries of the European Union, Spain is the second the largest country as surface, with 505,944 km2, behind France, which has 633,187 km2, according to EUROSTAT.

With 93.1 inhabitants per km2, Spain is, however, very unevenly distributed among territories. The three communities with the lowest population density are Castilla y León, Castilla - La Mancha and Extremadura, with approximately 25 inhabitants per km2 each, while the community of Madrid has more than 830 inhabitants per km2. The Spanish rural areas in particular have a population density of 19.79 inhabitants per km2 compared to the state average. The rural dispersion greatly limits their possibilities of economic development. The most depopulated communities in this sense are Aragón and Castilla y León with 10 and 11 inhabitants per km2 respectively.

There is no universally accepted definition of the rural environment. Public policies generally consider three dimensions: demographics, combining population densities with minimum population thresholds; information on coverage and land use; and accessibility to infrastructure and public services. According to the CES Report 01/ 2018 "The rural milieu and its social and territorial structure", in Spain it affects 85% of the territory and integrates around 20% of the population (although it could rise to 35% if periurban areas are included). The main problems of the rural areas in Spain could be summarized as: unemployment, depopulation and over-aging.

The value of the GDP generated in Spain's rural regions is logically lower than that generated in the rest of the regions, given that the latter are home to most of the population and employment. However, also in per capita terms the differences are significant. On average, the GDP per capita in rural areas is about 15% lower (both in current euros and in purchasing power parities) than in urban areas (CES, 2018). There is, therefore, a lower income, which is associated with a lower standard of living, but also with fewer opportunities to develop the productive fabric. The reasons for this situation (CES, 2018) include a wide range of factors, from the lower productivity of some of the economic activities with the greatest presence in rural regions, to the lower provision of public and collective services (which are also part of the GDP calculation) in these regions, as well as lower investment in infrastructure and equipment.

All this helps explain the difficulties in maintaining reasonable levels of dynamism in the rural population.

### 6.1.2 Companies from rural areas and connected to rural areas

One of the economic characteristics of the rural environment is the relevance of the primary sector, that is, agricultural activities -agriculture, livestock and assimilated- and a whole series of related activities: forestry and forest exploitation, hunting, sport fishing, etc., and the production of food from primary productions. In fact, the greatest weight by number of companies would correspond to the agricultural sector.

A recent study by Molinero (2019) points out the great relative weight of agriculture in the interior of Spain. While the average in our country of contributors to the social security in the primary sector reaches 5.6% (contributors to the SS), the average of the 7352 rural municipalities that calculate the work, reaches 17.5% in June 2018, exceeding 70% of employed in many of them. In fact, there are 1,224 municipalities that exceed the 50% employment rate in agriculture and by 2022 - a quarter of the total - those that exceed 40%. Although the process of desegregation continues unstoppable.

A major economic activity related to the rural environment is the food industry. The organization of value chains in the food sector explains the widespread establishment of these industries in rural or intermediate regions, especially in processing, with a high frequency of local artisanal products, and canning. The food industry is, in fact, very important in the Spanish manufacturing panorama. With data from 2016, it would be the leading industrial branch, with a turnover of close to 96,000 million Euros and an estimated GVA of 30,000 million, equivalent to 16% of that generated by the industrial sector and 21% of the manufacturing industry (CES, 2018). However, in the rural environment there are not only activities related to the primary sector, but in rural regions, as in urban ones, the greatest economic weight corresponds to services, although with significant differences with respect to urban areas. Services related to commerce, hospitality, information and communications are relevant, although with a substantially lower weight -almost seven points less in GVA- than in urban areas.

In general, micro-businesses predominate, with a high weight of the self-employed in the business structure. This entails a specific problem, with greater difficulties in several areas, from less access to credit to less investment capacity, essential for the introduction of the elements of competitiveness that have been pointed out above, such as innovation, training and the use of ICTs.

### 6.1.3 Circular economy indicators: development and perspectives

As with the concept of the circular economy, many indicators are used. While it is true that the measurement of the circular economy in quantitative terms is relatively recent, there are numerous indicators of environmental sustainability, efficient use of materials and waste management that can be used, although it would be desirable to have specific indicators that are more directly in line with the European objectives of the Circular Economy.

At the EU level, Eurostat has developed a Resource Efficiency Score-board. This initiative is especially important for evaluating the processes of the Circular Economy as part of broader strategic frameworks, such as the Europe 2020 strategy, adopted in 2010. According to the

European Commission (COTEC, 2019) while important progress is being made to integrate environmental, economic and social accounting systems, there is not a sufficiently broad consensus on which indicators should be used, improved or developed to define progress in improving resource efficiency and waste management, in order to better guide policy decisions, investment strategies and sustainable production and consumption activities.

The report published by COTEC (2019) prepared a proposal of indicators that includes the different groups of indicators used, with special consideration to the material economic processes linked to the efficient use of resources and waste management and recycling, understood as the structuring processes of the cycle of material flows of the "economic metabolism". They are a total of 20 indicators distributed in three groups:

- Main indicator: Productivity of resources (measured as the ratio of GDP to material consumption
- Basic indicators in the area of:
    - Material inputs: 4 indicators which are Raw Material Consumption, National Material Consumption, National Material Requirement, National Material Extraction
    - Ecodesign: 1 indicator on Life Cycle Durability
    - Production: 2 indicators that are Waste Generation by Sector and By-Product Exchange
    - Consumption: 1 indicator on Generation of Consumer Waste
    - Recycling: 1 indicator on Recycling Rate by Waste Type
    - Energy: 2 indicators on Energy Intensity and % Renewable Energy
    - Climate: 1 indicator on Carbon intensity
    - Water: 1 indicator on Reused Water Resources
    - Ground: 1 indicator on Built Surface
- 5 thematic indicators in the areas of Food (Reduction of wasted food), Building (Energy efficiency in buildings), Eco-innovation (R&D&I in Circular Economy), Taxation and Correct Prices (Waste Tax - Tax incentives for by-products) and Tourism (Waste flows generated as a result of tourism

Apart from the above, there are numerous classifications used to classify indicators. Saidani et al (2019) find a total of 55 indicators and catalogue them according to whether they are aimed at micro (products or clients), meso (industry) or macro (country) levels; the phases that have taken place (reduce, reuse and recycle) and whether, depending on these phases, it can be considered that a circular economy is being produced or whether the measurement of the circular economy is retrospective or prospective. Furthermore, they classify them according to the loop of the activities (recycle, re-use, maintain or all), the action (intrinsic, impact or both), the perspective

(potential or effective), the dimensionality (single or multiple) and the transversality (generic or sector-specific).

Huysmann et al. (2017) developed an indicator capable of measuring the performance of the circular economy of plastic waste treatment. That is, the use of waste as raw materials for the manufacture of other products. These authors classified waste according to its quality and estimated the relationship between the environmental benefit that companies had when they treated waste in the way they were used to and the ideal environmental benefit, expressed in terms of natural resource consumption.

In the report by Vercalsteren et al. (2018) they show an indicator of raw material consumption that measures the use of material in domestic production and consumption activities by equating used domestic extraction plus imports of raw materials minus exports of raw materials. It represents the overall amount of extraction used to provide products for domestic final demand. If the circular economy is functioning successfully, this indicator should decrease.

Azevedo et al. (2017) have developed an index to assess the sustainability and circularity of manufacturing enterprises. This index is inspired by previous work such as that of Salvado et al. (2015), but with some differences such as weighting through the Delphi Method and the fact that this index is useful for individual firms. This index, called the Circular Sustainable Index, is composed of four dimensions: Economic, social, environmental and circularity, which have proposed objectives that favour sustainable business development, such as the company carrying out activities such as reducing hazardous waste, energy consumption, maximizing inputs from recycled and reused materials and the efficiency of the recycling process. It also takes into account the duration and intensity of the product used compared to an average product in a similar industry.

There are other indicators such as "Cyclical material use rate" which is a ratio that calculates the cyclical participation of materials in the total use of materials. This ratio reports on the consumption of raw materials and the use of recovered secondary materials, although a problem that this indicator may present is the reliability of the data that companies offer to institutions, as no exact specification of which materials used should be included has been agreed upon.

A similar indicator to this one is the "WEEE management", composed of other sub-indicators such as the amount of electrical and electronic equipment wasted, recycled and reused.

In Spain, Ormazabal et al. (2018) studied through surveys, what SMEs (in particular SMEs located in Navarra and the Basque Country) do to develop the circular economy and what were the main barriers and opportunities for such companies when carrying out circular economy practices. The final valid sample consisted of 95 companies, 75% of which had less than 50 workers and, through the surveys, were divided into three groups of questions (transformation, use and recovery of products; association or integration between the companies to share infrastructure and the last group of questions corresponded to questions related to the benefits and obstacles they have when implementing circular economy activities). The main findings of this study are that SMEs seem to be most interested in the image they can give to the outside world as a company committed to the environment, although it is true that they do try to reduce the amount of materials consumed. Likewise, they do not believe that the circular economy can

help them to increase their profitability and one of the main barriers they encounter is the lack of support from public institutions.

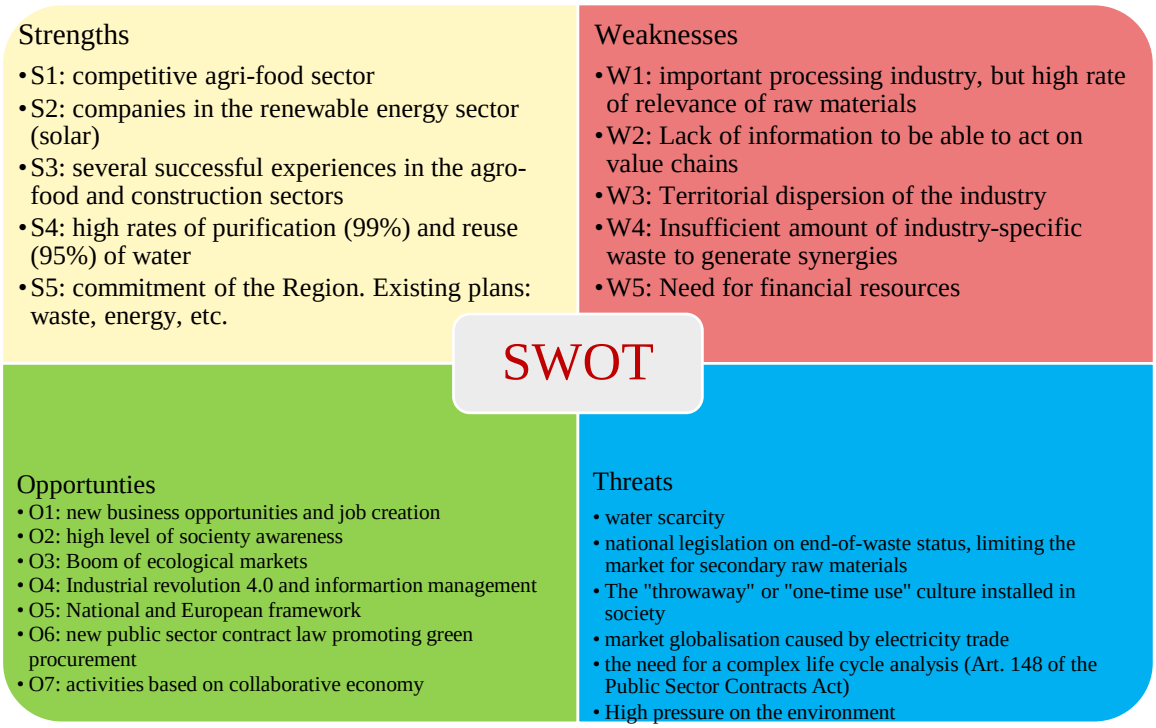
### 6.2 Murcia region and circular economy

While at European level, as already mentioned, the strategy on the circular economy is quite advanced, at national level, and especially in the region of Murcia, much remains to be done. The Governing Council of the Region of Murcia signed an agreement to begin the process of drawing up the Region's Circular Economy Strategy (ESECIRM) in September 2017, a strategy which has been active since 1 January 2019.

The basic objectives of the ESECIRM are to boost economic development by reducing the use of resources, decoupling economic growth from increased resource use, identifying and creating new opportunities for economic growth, guaranteeing the security of supply of essential resources, developing a market for secondary raw materials, fighting climate change and limiting the environmental impact of resource use in economic activities.

So far, a public consultation has been carried out, collecting 78 completed surveys and a total of 42 contributions (CARM, 2018a, b). In addition, a SWOT analysis has been carried out and the strategic objectives and lines of action have been set, pending the completion of the drafting of the 2025 Action Plan and the selection of the relevant indicators.

**Figure XX. SWOT analysis. Strategy ESECIRM**




Source: Circular Economy Strategy of Murcia Region (www.carm.es)

As a result of the SWOT analysis, the priority areas of intervention identified are the necessary transversality of the circular economy, eco-design and production, the importance of

distribution, consumption and repair, the reuse of products and materials, the recovery of waste and the market for secondary raw materials.

These areas of intervention have been included in a total of 51 measures, structured in eight lines of action which add up to a total investment of 510.4 million euros between 2019 and 2025, and which could directly generate nearly 2,000 'green' jobs, as well as maintaining another 21,000 (COTEC, 2019). This is a transformation of the current model of extraction, production and consumption to a model based on nine 'R's (rethink, redesign, repair, remanufacture, reduce, reuse, recycle, recover energy and redistribute), as well as the generation of 'green' employment linked to new business opportunities. The Strategy is fully aligned with the UN Sustainable Development Goals.

According to COTEC (2019), the eight lines of action in which the 51 specific measures of this strategy are integrated are:

1. Sustainable production, which has 13 actions to which 172.7 million euros will be allocated. It contemplates the creation of a support plan for entrepreneurs in the area of the Circular Economy, which will benefit 175 business projects, the promotion of the Bioeconomy through sustainable forest management or the plan to improve energy efficiency in companies, among other initiatives.

2. Sustainable consumption, which includes, for example, energy efficiency measures in families and institutions; or the programme to combat food waste with almost two million euros.

3. Waste management, which includes the promotion of the Region's waste plan.

4. Secondary raw materials. More specifically, the regional government is going to work on the creation of industrial 'eco-districts' in which the waste generated globally between the different industries is minimised through the local reuse of discarded waste.

5. Efficient use of water, where the community will develop programmes to improve irrigation systems and reuse treated water ('87 million); and other measures linked to improving sanitation or the operation of treatment plants.

6. Promotion of R&D&I, linked to R&D&I programmes in the field of systemic eco-innovation or development of pilot projects on eco-innovation in enterprises, with a budget of 17.5 million and benefiting 200 enterprises.

7. Knowledge, awareness and participation, with actions in the educational field, and specific campaigns to promote the responsible use of resources.

8. Promotion of employment and training, including, among other measures, the sustainable rural tourism plan, which will have a budget of EUR 14.8 million and will make it possible to develop natural environments while generating a positive impact on the environment.

The ESECIRM has identified the agri-food sector, manufacturing industry, tourism, construction and consumer goods as priority sectors, establishing 20 lines of action that respond to 8 strategic objectives (SOs):

SO1: Protecting the environment by optimising the use of natural resources and promoting mechanisms for cooperation between the administration and economic and social stakeholders

SO2: Encourage the implementation of the circular economy model in companies and other economic actors

SO3: To promote more responsible consumption through eco-labelling as a reference for the consumer, promoting the life cycle analysis of products made in the Region of Murcia

SO4: Disseminate, communicate and train on the importance of proceeding to a paradigm shift towards a circular economy model

SO5: Promote systematic eco-innovation and eco-design as key instruments of resource efficiency

SO6: Promote sustainable tourism that reduces its environmental and social impact

SO7: Encourage the re-use of consumer goods, as well as promote by-product declarations and the application of end-of-waste status, creating a market for secondary raw materials

SO8: Establish indicators to analyse the implementation of the Circular Economy

### 6.2.1 Murcia region

The Region of Murcia is one of the 17 Autonomous Communities into which the territory of Spain is divided. This uniprovincial community is located in the southeast of the Iberian Peninsula, between Andalusia and the Valencian Community, and covers a total area of 11,314 km2, which represents 2.23% of the national territory. The population of the Region of Murcia is 1,493,898 inhabitants (INE, 2019). 30% live in the capital, the City of Murcia, which together with those who live in Cartagena and Lorca, make up half of the region's total population. It is distributed in 45 municipalities, with most of them having between 20,000 and 50,000 inhabitants:

**Table XX Distribution of the municipal population of the Region of Murcia and its extension**

| | Population 2019 | % over regional population | Km² surface | % over regional surface |
|---|---|---|---|---|
| Murcia región | 1,493,898 | 100.0 | 11,313.9 | 100.0 |
| Abanilla | 6,127 | 0.4 | 236.6 | 2.1 |
| Abarán | 12,964 | 0.9 | 114.4 | 1.0 |
| Águilas | 35,301 | 2.4 | 251.8 | 2.2 |
| Albudeite | 1,373 | 0.1 | 17.0 | 0.2 |
| Alcantarilla | 42,048 | 2.8 | 16.3 | 0.1 |
| Alcázares, Los | 16,138 | 1.1 | 19.8 | 0.2 |
| Aledo | 1,022 | 0.1 | 49.7 | 0.4 |
| Alguazas | 9,638 | 0.6 | 23.7 | 0.2 |
| Alhama de Murcia | 22,077 | 1.5 | 311.6 | 2.8 |
| Archena | 19,301 | 1.3 | 16.4 | 0.1 |
| Beniel | 11,318 | 0.8 | 10.1 | 0.1 |
| Blanca | 6,539 | 0.4 | 87.1 | 0.8 |
| Bullas | 11,530 | 0.8 | 82.2 | 0.7 |
| Calasparra | 10,178 | 0.7 | 185.5 | 1.6 |
| Campos del Río | 2,028 | 0.1 | 47.3 | 0.4 |
| Caravaca de la Cruz | 25,760 | 1.7 | 858.8 | 7.6 |
| Cartagena | 214,802 | 14.4 | 558.3 | 4.9 |
| Cehegín | 14,983 | 1.0 | 299.3 | 2.6 |
| Ceutí | 11,787 | 0.8 | 10.2 | 0.1 |
| Cieza | 34,988 | 2.3 | 366.8 | 3.2 |
| Fortuna | 10,112 | 0.7 | 148.5 | 1.3 |
| Fuente Álamo | 16,583 | 1.1 | 273.5 | 2.4 |
| Jumilla | 25,600 | 1.7 | 970.6 | 8.6 |
| Librilla | 5,305 | 0.4 | 56.5 | 0.5 |
| Lorca | 94,404 | 6.3 | 1,675.2 | 14.8 |
| Lorquí | 7,141 | 0.5 | 15.8 | 0.1 |
| Mazarrón | 32,209 | 2.2 | 318.9 | 2.8 |
| Molina de Segura | 71,890 | 4.8 | 170.4 | 1.5 |
| Moratalla | 7,839 | 0.5 | 954.8 | 8.4 |
| **Mula** | **16,883** | **1.1** | **634.1** | **5.6** |
| Murcia | **453,258** | **30.3** | **885.9** | **7.8** |
| Ojós | 500 | 0.0 | 45.3 | 0.4 |
| Pliego | **3,847** | **0.3** | **29.4** | **0.3** |
| Puerto Lumbreras | 15,394 | 1.0 | 144.8 | 1.3 |
| Ricote | 1,264 | 0.1 | 87.5 | 0.8 |
| San Javier | 32,489 | 2.2 | 75.1 | 0.7 |
| San Pedro Pinatar | 25,476 | 1.7 | 22.3 | 0.2 |
| Santomera | 16,206 | 1.1 | 45.2 | 0.4 |
| Torre-Pacheco | 35,676 | 2.4 | 189.5 | 1.7 |

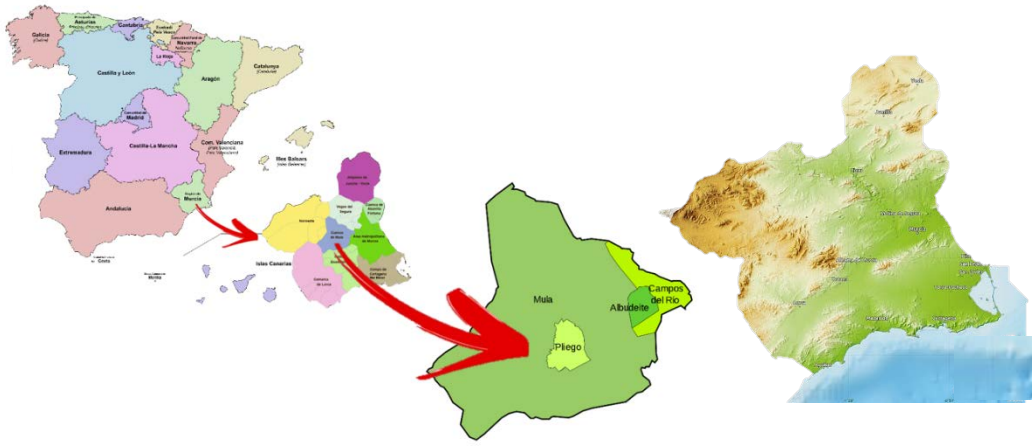
| | | | | |
|---|---|---|---|---|
| Torres de Cotillas | 21,471 | 1.4 | 38.8 | 0.3 |
| Totana | 32,008 | 2.1 | 288.9 | 2.6 |
| Ulea | 874 | 0.1 | 40.1 | 0.4 |
| Unión, La | 20,225 | 1.4 | 24.8 | 0.2 |
| Villan. del Río Segura | 2,910 | 0.2 | 13.2 | 0.1 |
| Yecla | 34,432 | 2.3 | 603.1 | 5.3 |

Source: INE and IGME

In Murcia the municipalities are very large and contain numerous settlements. The number of people living in small towns has been decreasing, concentrating around the big cities most of the population, more than 96%. While in 2009, 1.3% of the inhabitants lived in municipalities with less than 2,000 inhabitants, a decade later, this percentage has dropped to 0.33%. In municipalities with less than 10,000 inhabitants, 3.77% currently reside, while in 2009 it was 5.2%. The rural population of the Region of Murcia is the result of a family type agricultural and livestock economy, and is characterized by a population nucleus around which there are small scattered groups, formed by rural houses surrounded by farmland.

The municipalities of Pliego and Mula, where our case study is located, belong to the Region of the River Mula and their particular location - the municipality of Pliego is located in the heart of the municipality of Mula - explains the necessary relationship between the two.

Figure XX. Location and geography of the territory




Geographically, the Region of Murcia is located at the eastern end of the Cordilleras Béticas, its c :ography being influenced by the distribution and geomorphology of these. The Murcia territory has a great topographic variety. Of the 11,314 km2 that make it up, approximately 27% corresponds to mountainous reliefs, 38% to intramountain depressions and corridor valleys, and

the remaining 35% to plains and high plateaus. The coastline of the Region of Murcia extends along 274 km, of which 73 km belong to the Mar Menor.

The Region of Murcia has a Mediterranean climate with arid features: hot and dry summers, mild winters, although with frequent frosts in the interior, and rain in spring and autumn. The south-eastern part of Spain, where the Region is located, is the driest area in Europe. The general characteristic of Murcia's climate is its scarce rainfall, concentrated in a few days of the year, with maximums in autumn. The average temperature ranges from 14 °C to 18 °C, with a temperature range of up to 20 °C. Rainfall is between 300 mm and 500 mm per year.

Administratively, Murcia, as we have mentioned, is a uniprovincial autonomy, being the Assembly of the Region its main institution. The Assembly exercises legislative power. It is made up of 45 deputies who are elected every four years by universal suffrage, and among its functions, it appoints from among its members the autonomous president, legislates on those matters which are the exclusive competence of the community and approves the general budgets of the autonomous community. It has its headquarters in the city of Cartagena.

The structure of the Murcian economy is similar to that of the average in Spain, where the service sector, followed by industry, is the largest contributor to the Gross Domestic Product. Considering the regional economic structure according to the different branches of activity, the distribution of added value for 2016 is: Services (69.3%), Industry (18.7%), Construction (5.9%) and Agriculture (6.1%). The main difference is to be found in the agricultural sector, since while its contribution to the Spanish economy is 2.7% of GVA (2017), the Murcian economy doubles this figure.

Murcia, Cartagena and Lorca generate half of the Region of Murcia's GDP, with the specific weight of the capital, Murcia, standing out as the great driving force of the regional economy. In fact, practically one of every three euros generated in the Region originates from the regional capital: 9,138 million euros of the 31,000 million euros of regional GDP come from the city of Murcia. Among the 5,000 main companies in the Region, almost half (2,288) are located in Murcia, Cartagena or Lorca.

### 6.2.2 Economic activities and structure of the population

***Types of specific activities***

With regard to the production orientation in the business dynamic according to the activity carried out by the company, a table is provided showing that the companies in the Region of Murcia reflect a high degree of concentration based on production orientation that is even more accentuated than in the Spanish economy as a whole.

The distribution of companies by activity shows that slightly more than half (50.4%) in 2017, 3.3% more than in the country as a whole, are in the groups Trade and repair of motor vehicles (26.6%), Construction (13.3%) and Professional, scientific and technical activities (10.5%).

In addition, it can be seen from the evolution of the decade that, with the impact of the economic crisis on the region, companies engaged in Construction activities fell compared to

2007, despite the fact that it is still one of the main activities, but Manufacturing and Transport and Storage also fell.

**Table XX Evolution of the total number of companies by group of activity Period 2007-2017**.

| | 2007 | | 2013 | | 2017 | | (%) | | |
|---|---|---|---|---|---|---|---|---|---|
| | Companies | % | Companies | % | Companies | % | 07-13 | 13-17 | 07-17 |
| Murcia region | | | | | | | | | |
| B Mining industry | 105 | 0.1 | 90 | 0.1 | 89 | 0.1 | -2.5 | -0.3 | -1.6 |
| C Manufacturing | 7,534 | 7.5 | 5,747 | 6.6 | 6,291 | 6.6 | -4.4 | 2.3 | -1.8 |
| D Supply of electrical energy, gas, steam and air conditioning | 338 | 0.3 | 452 | 0.5 | 642 | 0.7 | 5.0 | 9.2 | 6.6 |
| E Water supply, sanitation, waste management and decontamination activities | 211 | 0.2 | 345 | 0.4 | 365 | 0.4 | 8.5 | 1.4 | 5.6 |
| F Construction | 21,622 | 21.6 | 12,052 | 13.9 | 12,691 | 13.3 | -9.3 | 1.3 | -5.2 |
| G Wholesale and retail trade; repair of motor vehicles and motorbikes | 26,030 | 26.0 | 24,326 | 28.0 | 25,415 | 26.6 | -1.1 | 1.1 | -0.2 |
| H Transport and storage | 6,379 | 6.4 | 5,133 | 5.9 | 5,064 | 5.3 | -3.6 | -0.3 | -2.3 |
| I Hospitality | 7,550 | 7.5 | 7,240 | 8.3 | 7,419 | 7.8 | -0.7 | 0.6 | -0.2 |
| J Information and communication | 859 | 0.9 | 900 | 1.0 | 1,274 | 1.3 | 0.8 | 9.1 | 4.0 |
| K Financial and insurance activities | 1,831 | 1.8 | 1,866 | 2.2 | 2,081 | 2.2 | 0.3 | 2.8 | 1.3 |
| L Real estate | 3,042 | 3.0 | 3,049 | 3.5 | 4,136 | 4.3 | 0.0 | 7.9 | 3.1 |
| M Professional, scientific and technical activities | 10,041 | 10.0 | 9,062 | 10.4 | 10,007 | 10.5 | -1.7 | 2.5 | 0.0 |
| N Administrative and support service activities | 3,568 | 3.6 | 4,144 | 4.8 | 4,762 | 5.0 | 2.5 | 3.5 | 2.9 |
| P Education | 1,679 | 1.7 | 2.086 | 2.4 | 2,843 | 3.0 | 3.7 | 8.0 | 5.4 |
| Q Health and social services | 3,188 | 3.2 | 3,530 | 4.1 | 4,076 | 4.3 | 1.7 | 3.7 | 2.5 |
| R Artistic, recreational and entertainment activities | 1,612 | 1.6 | 1,747 | 2.0 | 2,181 | 2.3 | 1.3 | 5.7 | 3.1 |
| S Other services | 4,486 | 4.5 | 5,013 | 5.8 | 6,208 | 6.5 | 1.9 | 5.5 | 3.3 |
| Total CNAE-09 | 100,075 | 100.0 | 86.782 | 100.0 | 95,544 | 100.0 | -2.3 | 2.4 | -0.5 |

Source: Economic and Social Council of the Region of Murcia Report on the socioeconomic and labour situation of the Region of Murcia 2018. Data: Central Business Directory (INE).

*Number and size of companies*

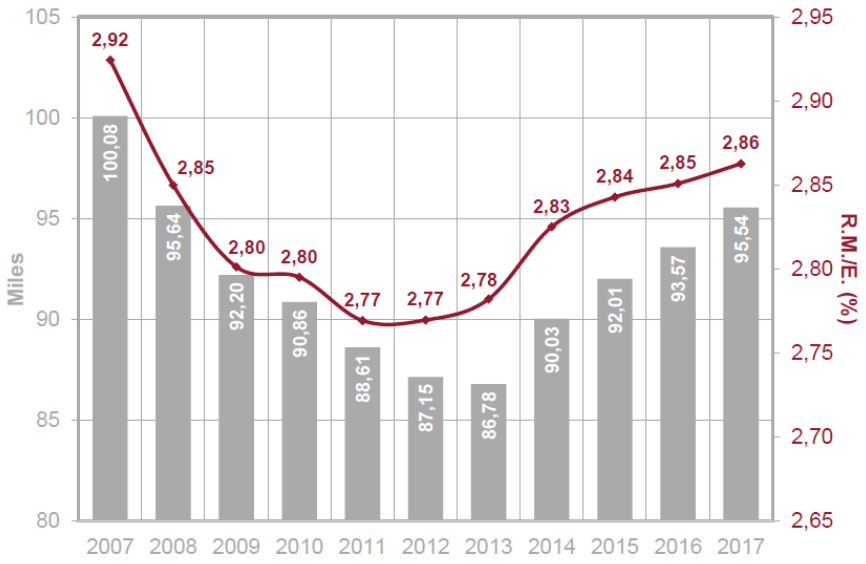
With the beginning of the economic recession, the Region of Murcia is one of the Spanish Autonomous Communities that has lost the most companies in the first half of the period 2007-2017. Since 2015 the recovery of companies is remarkable, although the pre-crisis level has not yet been recovered.

The number of companies in the Region of Murcia is 95,544, with around 4,500 companies missing to recover their initial level. As can be seen in the following graph, the number of

companies present in the region behave differently in the two opposite phases of the economic cycle. The first phase, highly destructive of the region's business fabric between 2007 and 2013, with 13,300 fewer companies, representing a fall of 13.3%; and the second phase, of recovery, in which the net balance for the period 2013 to 2017 increases by nearly 8,000 companies, 10.1% in percentage terms.

**Number of companies in the Region of Murcia. Period 2007-2017.**

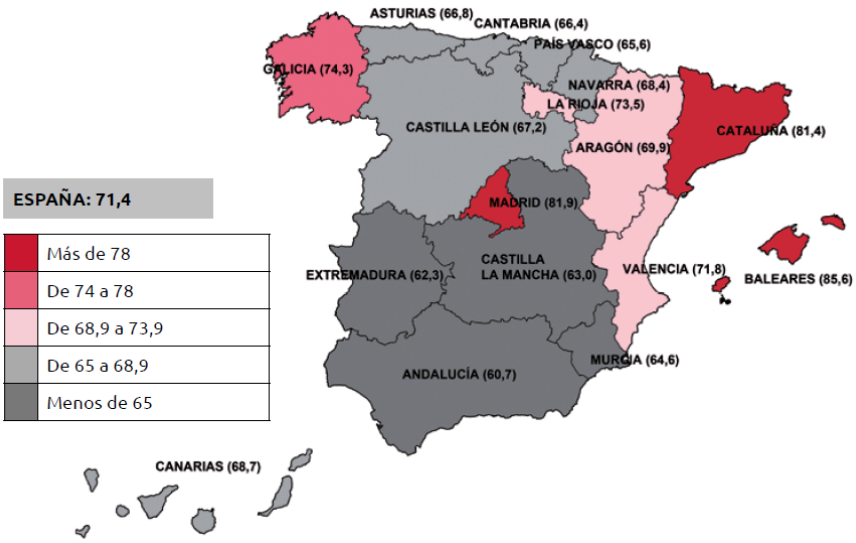
**(Thousands and % over Spain)**




Source: Economic and Social Council of the Region of Murcia. Report on the socioeconomic and labour situation of the Region of Murcia 2018. Data: Central Companies Directory (INE).

To give an account in comparative terms with the rest of the Spanish regions, one can observe the business dynamism of the regions in terms of business density. The position of the Region of Murcia is lower and far from the national average: 64.6 companies per 1,000 inhabitants, compared to 71.4 on average in Spain, and furthermore this gap has widened since 2007, a behaviour which is mainly due to the significant deterioration affecting companies with employees.

**Business density by Autonomous Communities. Year 2017.**




Source: Economic and Social Council of the Region of Murcia. Report on the socioeconomic and labour situation of the Region of Murcia 2018. Data: Central Companies Directory (INE).

Given the business size of companies in Spain as a whole, the Region of Murcia has a very similar structure, which can only be found in medium and large companies, which represent a smaller share. However, in the total context of the Spanish Autonomous Communities, for the total number of micro-companies it also reflects a lower proportion.
The distribution of the business dimension in the Region of Murcia shows a greater presence of micro-companies (89.23%) in 2017, followed by small (8.47%), medium-sized (1.35%) and large (0.39%) companies.

**Evolution of companies by number of workers: 2007-2017.**

| | 2007 | | 2013 | | 2017 | | T.I.A (%) | | |
|---|---|---|---|---|---|---|---|---|---|
| | Companies | % over total | Companies | % over total | Companies | % over total | 07-13 | 13-17 | 07-17 |
| **Region of Murcia** | | | | | | | | | |
| **Micro (1-9)** | 46,327 | 89.96 | 38.720 | 91.23 | 39.235 | 89.23 | -2.95 | 0.33 | -1.65 |
| **Small (10-49)** | 6,050 | 11.36 | 3.170 | 7.47 | 4.037 | 9.18 | -10.21 | 6.23 | -3.96 |
| **Medium (50-199)** | 715 | 1.34 | 432 | 1.02 | 559 | 1.27 | -8.05 | 6.66 | -2.43 |
| **Big (200)** | 182 | 0.34 | 120 | 0.28 | 142 | 0.32 | -6.71 | 4.30 | -2.45 |
| **TOTAL** | 53,274 | 100.00 | 42.442 | 100.00 | 43.973 | 100.00 | -3.72 | 0.89 | -1,90 |
| **Spain** | | | | | | | | | |
| **Micro (1-9)** | 1,465,019 | 87.84 | 1,3316,431 | 90.99 | | 89.79 | -1.77 | 0.43 | -0.89 |
| **Small (10-49)** | 172,078 | 10.32 | 108,383 | 7.49 | | 8.47 | -7.42 | 3.91 | -3.04 |
| **Medium (50-199)** | 24,303 | 1.46 | 16,976 | 1.17 | | 1.35 | -5.80 | 4.38 | -1.86 |
| **Big (200)** | 6,465 | 0.39 | 5,037 | 0.35 | | 0.39 | -4.07 | 3.76 | -1.01 |
| **TOTAL** | 1,667,865 | 100.00 | 1,446,827 | 100.00 | 1,491,765 | 100.00 | -2.34 | 0.77 | -1.11 |

Source: Economic and Social Council of the Region of Murcia. Report on the socioeconomic and labour situation of the Region of Murcia 2018. Data: Central Companies Directory (INE).

### *The social environment: structure of the population*

According to the population figures of the Region of Murcia, with data from the Municipal Register as of 1st January 2018, the population in the region is 1,478,509 inhabitants, representing 3.16% of the national total, as shown in the table below.

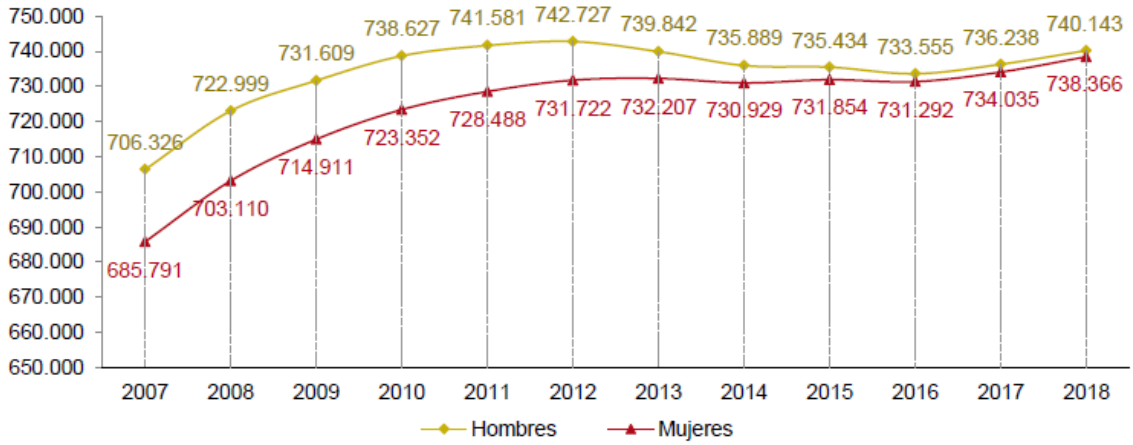
**Evolution of the population in the Region of Murcia**

| Geographical context | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|
| **Region of Murcia** | 1,466,818 | 1,467,288 | 1,464,847 | 1,470,273 | 1,478,509 |
| **Spain** | 46,771,341 | 46,624,382 | 46,557,008 | 46,572,132 | 46,722,980 |

Source: Labour market report of the Region of Murcia 2019. Data 2018

If differentiated by sex, the male population is slightly higher (50.06%), inversely to the national level data. However, data in the Region of Murcia tend to converge.

**Evolution of the population by gender**

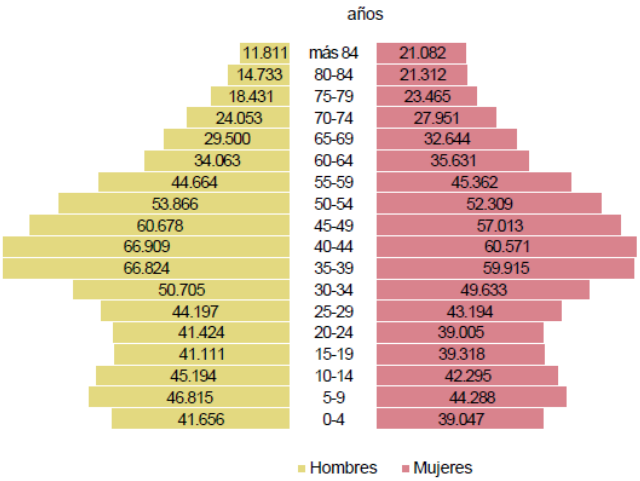



Fuente: Informe del Mercado de Trabajo de la Región de Murcia 2019. Datos 2018.

Up to the age of 55 the male population has a higher proportion, but from that age there is a change in the trend in favour of women. On the other hand, 38% of the population of the Region of Murcia is between 25 and 50 years old.

The region's population has an ageing index (proportion of people over 64 years old compared to those under 16) of over 84%, which is lower than the national average of 120.46%. However, the replacement rate (proportion of population aged 60-64 to 20-24) is lower than at the national level, 88.65 per cent in the region compared to 118.17 per cent at the state level. This indicates that young people are less likely to enter the workforce.

**Population pyramid of the Region of Murcia**




Source: Labour Market Report of the Region of Murcia 2019. Data 2018.

If we look at migratory flows in the Region of Murcia, in relation to entries or exits from or to other Spanish regions, as well as from or to foreign countries, both of persons with Spanish and foreign nationality, in the year 2017 (latest information available), we see that the domestic balance was positive, while the foreign balance was negative.

Migrations by gender

| Gender | Inmigration | | Emigration | | Migration balance | | |
|---|---|---|---|---|---|---|---|
| | From other provinces | Foreign | Other provinces | Foreign | Intern | Extern | Toral |
| Maale | 6,894 | 7,959 | 6,827 | 9,138 | 67 | -1,179 | -1,112 |
| Femmale | 5,303 | 6,747 | 5,328 | 6,569 | -25 | 178 | 153 |
| Total | 12,197 | 14,706 | 12,155 | 15,707 | 42 | -1,001 | -959 |

Source: Labour Market Report of the Region of Murcia 2019. Data 2018.

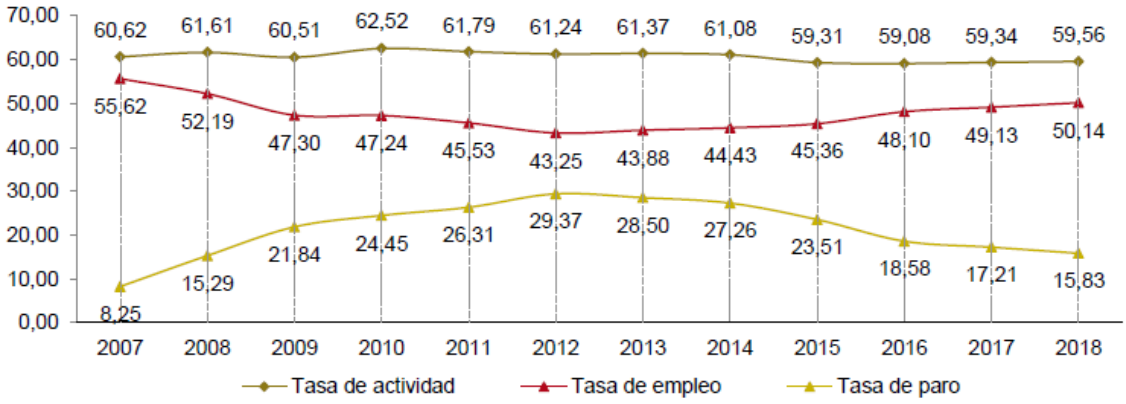
This reflects the fact that the number of people who have moved to the Region of Murcia with the aim of residing there from other Spanish regions is greater than the number of people already resident in the region who have moved to other areas of Spain. On the other hand, the departure of people resident in the region to foreign countries was greater than those who sought residence in the Region of Murcia. In general terms, the migratory balance was negative; the number of people who left was greater than those who entered.

### *The existing workforce and the level of qualification*

The activity and unemployment rates in the Region of Murcia are slightly higher than the national ones, and in terms of employment rate, it has a convergent trend. As can be seen in the following graph, the unemployment rate increased by around 20 percentage points until it reached its maximum in 2012, coinciding with the hardest years of the economic crisis. From 2013 onwards, improvements can be seen in labour market rates in the Region of Murcia, although it is true that the fall in the unemployment rate is greater than the increase in the

region's employment rate. If the data by sex are presented, the activity and employment rates for men are higher than those for women, but the unemployment rate for men was again lower, after a few years when it was higher (between 2008 and 2010), probably due to the sharp and rapid decline in employment in the construction sector.

**Evolution of activity, employment and unemployment rates.**

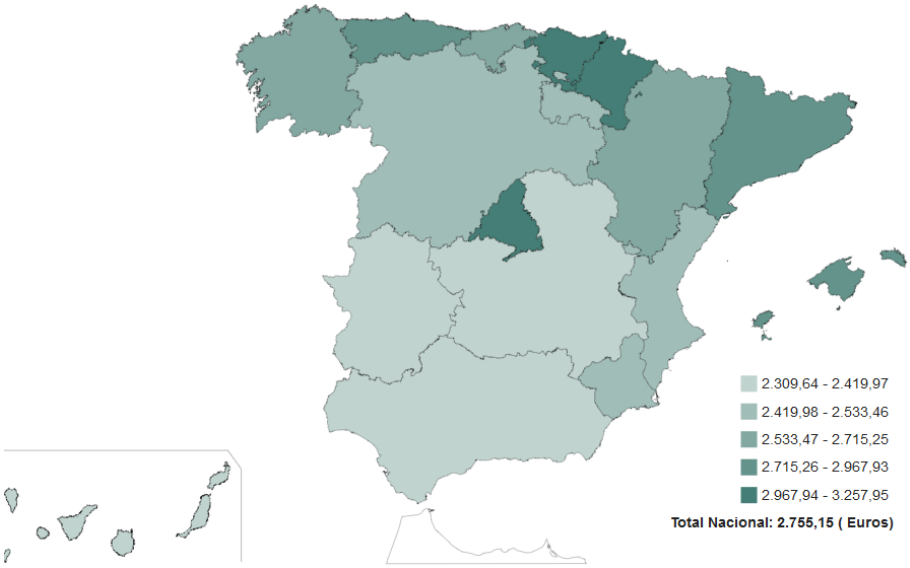



Source: Labour Market Report of the Region of Murcia 2019. Data 2018.

With regard to the active and employed population by economic sector, in 2018, the increase in those employed in industry (23.64%) was noteworthy, followed by construction (12.57%) and agriculture (8.89%), and a decrease in the service sector (2.36%). It should be noted that for the Region of Murcia, the proportion of agriculture, both in terms of assets and employed persons, is three times higher than the corresponding rates at national level.

Next, the data and evolution of labour costs per worker and month are analysed. This indicator forms part of the EUROSTAT euro-indicators with the aim of measuring convergence in terms of labour costs. If we look at the national level for the whole of Spain, the data from the Spanish National Institute of Statistics offer the following graph in which it can be seen that the Region of Murcia is in the group of regions with the second lowest labour cost per worker and month, i.e. between 2,419.98 and 2,533.46 euros, specifically for the region it is 2,444.10 euros, i.e. the Region of Murcia is close to the threshold of the group of Autonomous Communities with the lowest labour cost per worker and month.

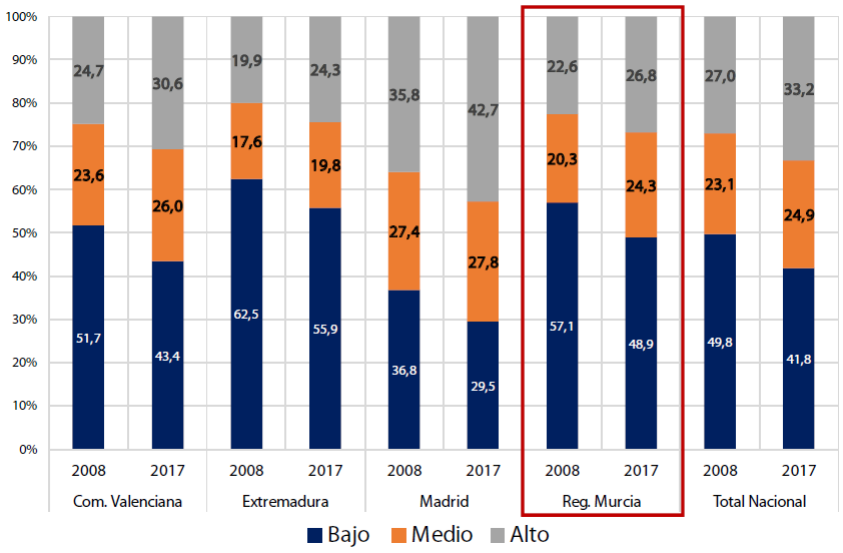
**Labour cost per employee and month**




**Source: National Institute of Statistics, 2020.**

With regard to the qualification of the labour force in the region, there has been a reduction in the population with low education, so that in 2008 they represented 57.1% of the cohorts aged 16 to 64, while in 2017 this percentage will drop to 48.9%. This reduction has meant an increase of around four percentage points both in the population with medium studies (20.3% compared to 24.3%) and in the population with high studies (22.6% compared to 26.8%).

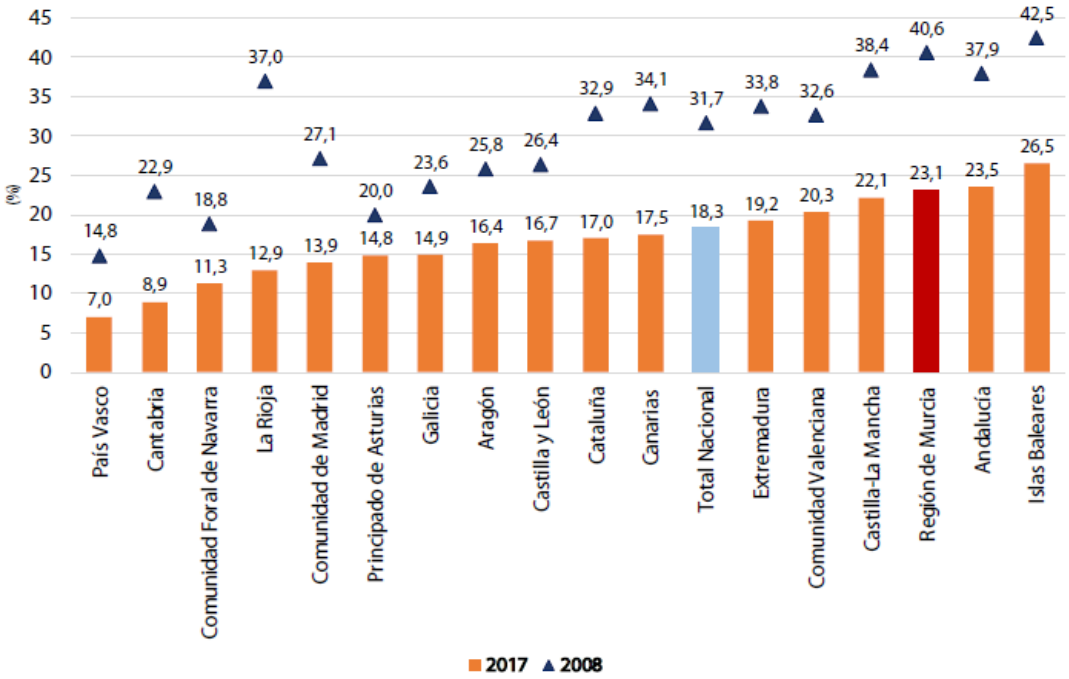
**Distribution of the population aged 16 to 64 by educational level**




Source: Economic and Social Council of the Region of Murcia. The competitiveness of the Region of Murcia. An analysis based on the regional competitiveness index. Data: INE.

If we look at the indicator of early drop-out from the education system, that is, the percentage of 18-24 year old who have not completed the second stage of secondary education, we see that in 2008 the Region of Murcia had the second highest figure with 40.6%, after the Balearic Islands, but by 2017 this had fallen to 23.1% (17 points lower), as was the average for the whole of Spain which stood at 18.3% (13 points lower).

**Early school leaving among 18-24 year old**



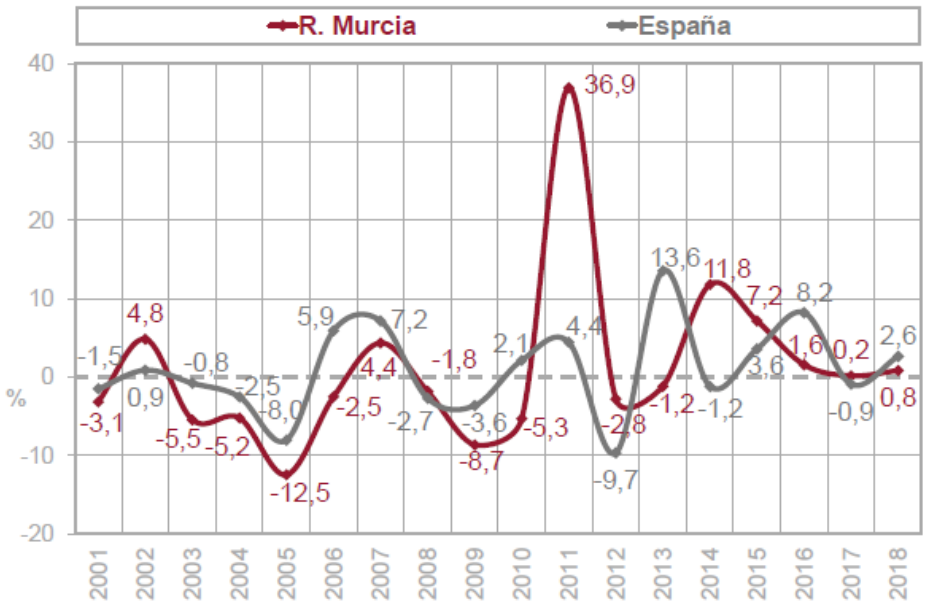

Source: Economic and Social Council of the Region of Murcia. The competitiveness of the Region of Murcia. An analysis based on the regional competitiveness index. Data: INE.

***Contribution of the rural area to the region's economy***

Agricultural activity in the Region of Murcia has accumulated five years of positive values in the growth of agricultural gross value added, but it is true that in the last two years it has been rather lacking in vigour.

In 2018, agricultural GVA increased in terms of volume by 0.8%, an advance which is considered to be small, although it is six tenths higher than the previous year's figure. GVA growth in Spanish agriculture is even more vigorous, increasing by 2.6% in the same year, recovering the 0.9 percentage point drop of 2017.

**Development of agricultural gross value added by volume (%)**




Source: Economic and Social Council of the Region of Murcia. Report on the socioeconomic and labour situation of the Region of Murcia 2018. Data: Spanish Regional Accounts, homogeneous series 2000 - 2018 base 2010 (INE).

In the same vein, two other macro-magnitudes present unfavourable data for the region's agricultural activity. The Regional Ministry of Water, Agriculture, Livestock and Fisheries confirms that the data for 2018 has not been good in terms of income and agricultural employment.

With regard to agricultural income, it has suffered a decline that is due to the fact that the fall in prices at origin has a direct impact on agricultural production. The value of agricultural income in the Region of Murcia for 2018 amounts to 2,769 million euros, representing a decrease in value of half a percentage point in nominal terms compared to 2017. This is due to a 1.7% contraction in prices which has not compensated for the 1.2% rise in physical production, and to the 2.6% increase in intermediate consumption and the price, with almost one percentage point, above all in animal production holdings.

In this sense, the agricultural labour market worsens in the region in 2018 according to the estimates of the INE's Labour Force Survey, with a fall of 1.2 percentage points with respect to

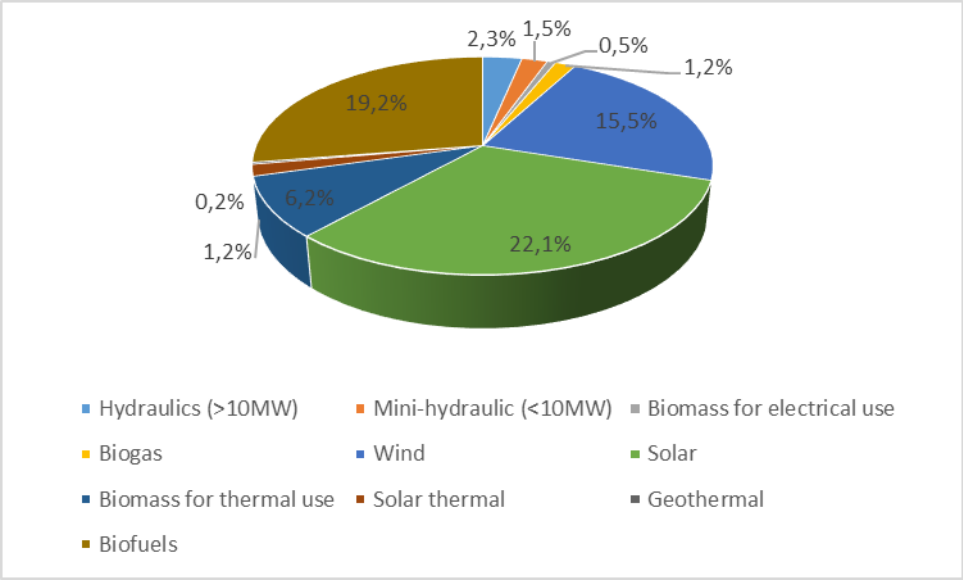
the number of employed people, leaving the average at 79,600, when in 2017 it announced a growth of 5.2%.

### 6.2.3 Natural resources for sustainable development

According to data from the latest consolidated balance sheet, in the Region of Murcia in 2014, renewable energy consumption stands at 7.3% of total primary energy consumption, while the average for Spain is 14.6% (CARM, 2015). Natural gas is the majority conventional energy source in the region, accounting for 47% of total primary energy - 22% at national level - and 43.3% of final energy consumption - 17.8% at national level.

In 2014, regional production of energy from renewable sources amounted to a total of 300 ktoe, with a negative variation of 10.3% with respect to the previous year, changing the trend of previous years, mainly due to the decrease in production at biofuel plants. The decrease in electricity production using mini-hydraulic and wind technologies also contributed to this decrease.

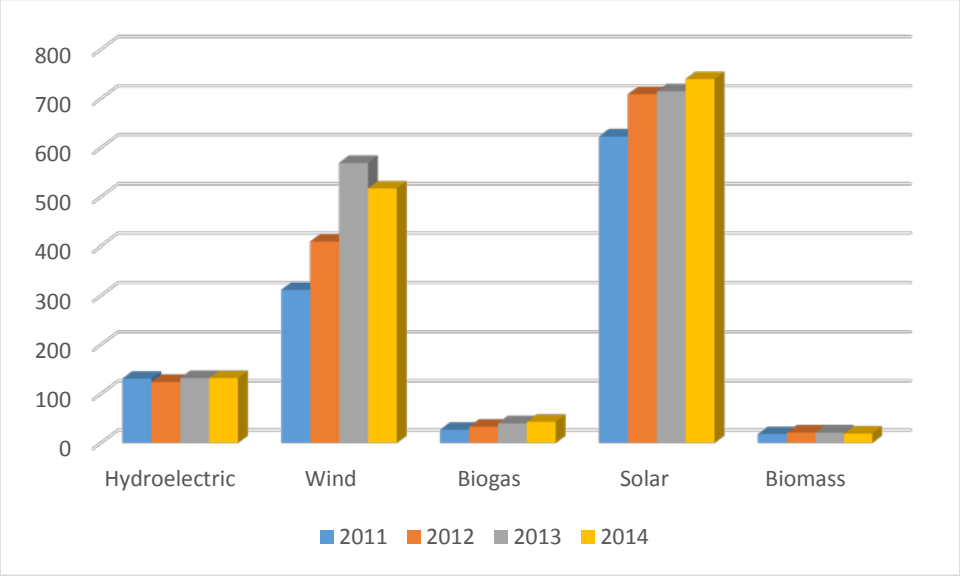
**Graph XX. Structure of energy production from renewable sources**




Source: CARM, 2015

Installed capacity in renewable source electricity production plants continues to grow, although more steadily than in previous years, for a total of 802 MW installed (CARM, 2015). In terms of technologies, those for the use of solar resources have the greatest presence in the Region, with 475 MW, followed by wind farms with 262 MW, hydraulic jumps with 42 MW, and biomass and biogas turbines with 23 MW. The Region of Murcia has some 5,110 photovoltaic installations which generate 773 GWh, which is more than 9% of the total solar energy produced in Spain, and the fifth largest community in terms of installed power, surpassed only by larger communities such as Castilla-La Mancha, Andalusia and Castilla y León.

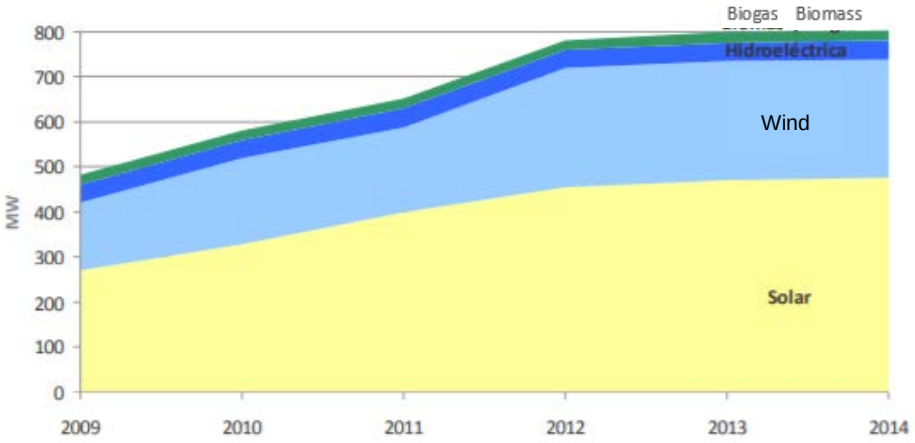
**Graph XX. Electricity production from renewable sources**




Source: CARM, 2015

Graph XX shows the evolution of electricity production capacity from renewable sources by technology, with solar photovoltaic obviously predominating due to weather conditions in the Region of Murcia, followed by wind power, and to a lesser extent, by hydroelectric and biomass and biogas technologies.

**Graph XX. Evolution of installed electrical power from renewable sources**




Source: CARM, 2015

In accordance with the objectives set by the EU in the Treaty of Lisbon with regard to energy policy - ensuring the functioning of the energy market; guaranteeing the security of the EU's energy supply; promoting energy efficiency and energy saving as well as the development of new

and renewable forms of energy; promoting the interconnection of energy networks - the strategic objectives of the Energy Plan for the Region of Murcia 2016-2020 are as follows:

- SO1: Ensure safe (supply, legal and preventive) and quality supplies with the necessary infrastructure.
- SO2: Promote energy saving and efficiency in all areas.
- SO3: Promote the use of sustainable and competitive energy sources

In addition, it is established that the strategic objectives must be oriented towards a "circular energy economy" which will include all the actors involved. It is important to emphasis that, following the tactical objectives of Directive 2012/27/EU , of achieving the main energy efficiency objective of 20% savings by 2020 (20% reduction in greenhouse gas emissions, 20% energy consumption from renewable sources and 20% increase in energy efficiency), it has been decided to update these figures to 2030, with the objective for that year of a 40% reduction in greenhouse gas emissions, more than 27% of energy consumption from renewable sources and 27% increase in energy efficiency.

In December 2019, the Government of the Region of Murcia announced that it would allocate up to 6.5 million euros in subsidies to companies to promote the use of renewable energies and energy efficiency by 2020, almost 1.5 million more than in 2019, the largest subsidy since the aid programme began. In 2019, a total of 163 companies in the Region of Murcia benefited from energy efficiency subsidies, with a total budget of 5.1 million euros, of which 3.6 million were to promote the use of renewable energies and 1.5 million to improve energy efficiency. Of the total number of firms receiving this aid, 63 have used it to incorporate the consumption of photovoltaic energy in their own facilities and 100 to improve the energy efficiency of the firm and the manufacturing processes of its products.

### 6.2.4 Case study: implementation of circular economy in rural areas of the Region of Murcia: The case of Pliego-Mula. A description of an existing case study

***What is intended to be analysed in the context of the circular economy***

The new challenges that are arising in the European Union regarding the achievement of economic development processes that are compatible with nature conservation require the most accurate possible knowledge of how the different areas under study have evolved in recent years and a comparison between them in order to obtain lessons that can be useful in a generalised way.

It is clear that we are faced with very different situations in each country, but it is also true that we can always see common aspects that can be improved with the experiences of the rest.

In this case we provide some recent experiences that have taken place in a small municipality in the province of Murcia (Spain), called Pliego, with a population of about 4,000 inhabitants and dedicated preferably to agriculture. The objectives achieved by collective companies such as the

La Vega de Pliego Cooperative and the Pliego Irrigation Community can be very good examples of the efforts made to improve in a sustainable way by taking advantage of all the natural resources of the area.

***Characteristics of the rural environment of Pliego-Mula***

The geographical area of the study zone is made up of two institutionally distinct units, although due to the inclusion of the municipality of Pliego in the municipality of Mula, they form one geographical unit.

**Map of the Region of Murcia (Spain).**

**In red, the municipality of Mula and in the interior, the municipality of Pliego**

***Pliego***

The municipality of Pliego is located in the natural region of the Cuenca de Mula, in the central part of the Region of Murcia. It constitutes a geographical unit formed by a Miocene basin drained by the River Mula and its tributary the River Pliego. The municipality is located to the northwest of Sierra Espuña, occupying an area of 4 km2 in the northern foothills of the massif and the plain of the river Pliego runs through the western part of the municipality.

It is a rugged area in the east, with deep ravines and numerous mountain peaks of over 500 m, such as Alto de la Muela (504 m), Cairel (601 m) and Alto de Almoloya (561 m). The western half is characterised by rich plains that extend to the right bank of the River Pliego, creating a varied landscape of crops and natural vegetation.

The population of Pliego according to the 2019 census is 3,847 inhabitants, which gives a high population density of 135 inhabitants per square kilometre.

The current population continues to be linked to agricultural activities, although a progressive incorporation into new productive areas can be observed: community services, environment,

catering, tourism, etc. Also, it is a population with a tendency to remain in its place of origin, with the positive consequences that it has for natural growth, and in which an important mass of foreign population stands out, which at the moment reaches 16% of the total of people registered in the municipality.

The statistical census of 2010 indicated the total number of inhabitants at 4,296, of which 3,589 were natives and 707 foreigners. This foreign population represents a clear demographic potential for the birth rate and youth population. It is significant that, for such a small territory, there is a foreign population made up of twenty-seven nationalities, the most representative of which are Portugal, with 217 people registered, working in the road transport sector, Morocco, with 175 people, employed in agricultural activities, and the United Kingdom, with 110 people, who have their habitual residence here.

The local economy, until the middle of the 20th century, was marked by the fact that its main source of activity was agriculture, but in a self-sufficient agriculture. The distribution of land was very unbalanced, as in 1950 only two landowners owned more than 62% of the total dryland.

***Main economic activities. Economic organisations***

The local economy is mainly based on agriculture and livestock, but the crisis in the primary sector present in Spain and in Murcia, is also felt in this area, composed mainly of small farmers and entrepreneurs, where many leave the activity. Its main crops are fruit trees, especially apricots in the "búlida" and "real fino" varieties, which are highly appreciated for their flavour and quality in foreign markets, followed by peaches, almonds and vines.
The largest companies operating in Pliego are of a cooperative and social nature. Both those involved in the marketing of agricultural products from the surrounding area and those involved in the management of irrigation water do not aim to achieve maximum profits for themselves, but rather to enable all their associates and members to use the common resources as freely as possible in terms of their production or water consumption at the lowest possible cost. These characteristics, in terms of economic organisation, generate strong social ties that, over the last few years, have managed to overcome many of the existing obstacles to progress in the area.
The rest of the economic activities revolve around agriculture and the agro-food industry. The small size of irrigated crops has conditioned the forms of marketing of agricultural production that have sought the cooperative formulas that best combine the dispersion of ownership and production with the concentration of sales to achieve the best price conditions and guarantees to wholesale marketers. On the other hand, in previous periods there has been a strong dependence on the monoculture (the majority crop) of the apricot tree, a fruit tree which has a short ripening period which concentrates the supply in a few days. The alternative to these situations has been to change the variety in order to achieve staggered ripening processes over time, strengthening the cold chain to expand the possibilities of fresh consumption and complementing the canning industry to absorb excess production. This last option has sometimes been the majority, with production being more closely linked to preserving than to fresh consumption (especially in Mula).
This production dynamic has historically gone through many phases in which the disorganisation of supply or the dependence on wholesalers caused production prices to fall. There are many experiences of failure in the search for solutions to these problems.

The seasonality of crops, of course, also conditions the demand for work, both in the fields and orchards, and in the marketing or canning industries. Especially the harvesting of apricots and other fruit trees means that the peaks of hiring are during the months of May and June, with much lower demand for workers in the other months (pruning, tilling, fumigation, etc.).
The high level of fragmentation of the properties, as well as the toponymic irregularities of some of the orchards, do not allow us to predict that, in the near future, these aspects can be relied upon to achieve an improvement in crop yields and agricultural income.
In recent years, the existence of new cooperatives which are much more in line with the interests of their environment has led to a notable improvement in the efficiency of production and profitability, although we must not forget that we are talking about agricultural production, with low economic returns in general.
There are two cooperatives: "La Vega de Pliego" and "Cooperativa La Pleguera".
The "La Vega de Pliego" Cooperative (http://www.vegadepliego.es/index.php/quienes-somos) was set up in 1983 with twelve farmers as the La Vega de Pliego Apricot Harvesters' Association. At that time, for various reasons, the cooperatives did not have a good image and were rejected by the farmers, so it was decided to start this experience with another type of structure, which would ultimately generate the confidence to later transform it into a cooperative. As was the case in November 1985.
Already, for the first apricot campaign in 1984, some sixty farmers were grouped together with a concentration of supply of some 400,000 kilos. In the second campaign, in 1985, with a total of one hundred and twenty members and almost one million kilos. The project was consolidated.
From that moment on and its transformation into a cooperative, it was the beginning of a successive increase in members, share capital, annual turnover, expansion of sections in fresh fruit, nuts, citrus fruits, olives, supplies, etc. Land was acquired and warehouses were built for the installation of cold storage:

**Annual sales of the main products (€): La Vega de Pliego**

| | 2011 | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|
| Oil | 262,514 | 225,410 | 219,925 | 170,720 | 284,757 |
| Citrus fruit | 82,438 | 77,970 | 120,664 | 92,497 | 398,471 |
| Peach | 115,392 | 373,274 | 307,104 | 236,832 | 284,753 |
| Almond | 1,684,142 | 2,674,765 | 3,530,916 | 2,378,731 | 3,907,718 |
| Apricot | 246,271 | 578,973 | 824,049 | 677,322 | 950,302 |

**Balance Sheet and Profit and Loss Account (Relevant data €): La Vega de Pliego**

| **Concept** | **2018** | **2017** | **2014** | **2013** | **2012** | **2011** |
|---|---|---|---|---|---|---|
| **Importe neto cifra de negocios** | 9,551,092 | 5,924,147 | 5,533,703 | 7,071,394 | 5,996,462 | 4,440,014 |
| **Aprovisionamientos** | 8,145,867 | 4,467,372 | 4,345,515 | 5,934,674 | 4,973,088 | 3,655,811 |
| **Gastos de personal** | 716,949 | 692,992 | 524,102 | 400,826 | 355,918 | 352,117 |
| **Fondos propios** | 2,755,457 | 2,760,818 | 3,640,407 | 3,730,920 | 3,941,585 | 3,977,090 |
| **Subvenciones** | 653,998 | 631,590 | 737,027 | 790,454 | 943,586 | 968,714 |

Source: http://vegadepliego.es/attachments/article/46/informe_auditoria_2018.pdf and La Vega de Pliego 30 años de cooperativismo. Noviembre 2015.

The advances that have taken place in irrigated agriculture in particular (production and marketing) have been complemented by those relating to the provision and management of water, a fundamental element in the whole process.

We are in an area with scarce and irregular availability of surface water, which can be seen in the Rivers Pliego and Mula, which are very low and disastrous (especially when they reach the River Segura) and are unable to retain the resources on the surface for long. Logically, the greatest historical resources come from the aquifers of the area.

In a unique and, to a certain extent, surprising way, the dispersion in the management of water for irrigation has gone from being fractioned and inefficiently applied to being managed in a unified and integrated manner, taking advantage of all existing resources (surface water, underground water, regenerated water, and water from the Tagus-Segura Transfer) with the lowest costs for its distribution (photovoltaic generation of energy) and the greatest possible savings through localised irrigation.

The area covered by the Pliego irrigation area included in the Pliego Irrigation Community (there are some properties belonging to the municipality of Mula) with water rights is 818 Há.; while the current annual rights are 2. 326,156 m3 from the boreholes known as "El Prado", 1,140,000 m3 from the Tagus-Segura Transfer and 163,203 m3 from the Pliego Wastewater Treatment Plant (Pliego Irrigation Community: Water, a Union resource.30-4-2016 http://www.crpliego.es/documentos/dosier_proceso_CR_Pliego.pdf)

***SWOT analysis on the current situation of the Pliego-Mula environment from the perspective of the circular economy***

| STRENGTHS | WEAKNESSES |
|---|---|
| - Climatic conditions that favour the production of fruit (mainly apricots) and the lengthening of harvesting seasons. The "high orchard" is colder than the "low orchard" and favourable for seasonal and late varieties, and vice versa. - Professionalization of the farmers in the "plegueros". The professionals have a high technical level, and there is qualified labour for cultivation and harvesting, the result of the existing tradition in apricot production.<br>- Innovative effort in nearby production, such as the new varieties developed by a French company located in Pliego, which is a world reference.<br>-Safety in the availability of water resources, with all the available equipment.<br>- As far as marketing is concerned, we have the knowledge of marketing companies (such as UNEXPORT), which have a great deal of experience in exporting top quality fruit to demanding European markets. Experience is also available in inter-cooperative collaboration or with export consortia.<br>- There is the possibility of exporting exotic fruit in line with new consumption techniques, and of expanding | -Stagnant or declining population<br>-Strong dependence on the agricultural sector.<br>-High dispersion of agricultural properties<br>-High seasonality of production<br>-Dependence on other territories for economic activities<br>-Lack of alternatives |

| | |
|---|---|
| the range of products offered.<br>-Strong ties with the population<br>-powerful collective institutions within their size<br>-Highly efficient use of local resources | |
| OPPORTUNITIES | THREATS |
| - The implementation of a varietal reconversion, currently in progress.<br>- The development of integrated production. - The possibility of hiring our own labour.<br>- The incorporation of technological, productive and commercial improvements in which the cooperative LA VEGA DE PLIEGO is currently involved, and which are aimed at reducing production costs, through the aid of the Operational Funds and research in collaboration with public bodies.<br>- The rationalisation of the use of water for irrigation through the modernisation of irrigation systems and the external supply of regenerated waste water.<br>- The growth in demand for higher quality fruit.<br>- The tendency of production chains to establish stable relations with operators at source, as well as the shortening of the distribution chain.<br>- The opportunity to provide an outlet for fresh destruction.<br>- The improvement of transport and post-harvest conservation systems, which facilitates exports to more distant countries.<br>-Ideal conditions for organic production. | -Stagnant or declining population<br>-Strong dependence on the agricultural sector.<br>-High dispersion of agricultural properties<br>-High seasonality of production<br>-Dependence on other territories for economic activities<br>-Lack of alternatives |

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(Falta citar documentos estrategia ec circular Murcia, plan de acción región de Murcia circular 2018-2025)