



# EVALUATION OF THE MAIN ACHIEVEMENTS OF COHESION POLICY PROGRAMMES AND PROJECTS OVER THE LONGER TERM IN 15 SELECTED REGIONS

(FROM 1989-1993 PROGRAMMING PERIOD TO THE PRESENT)

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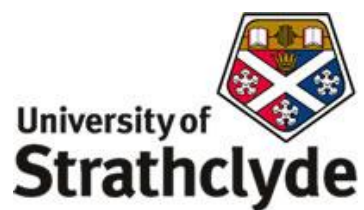


## Case Study Andalucía

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## PREFACE

This report presents the case study for Andalucía (Spain) as part of the study ‘Evaluation of the Main Achievements of Cohesion Policy Programmes over the Longer Term in 15 Selected Regions (from 1989-1993 Programming Period to the Present)’ which is being managed by the European Policies Research Centre and the London School of Economics. The research was conducted over the period April 2012 to November 2012.

The case study was drafted by Andrés Faíña, Jesús López-Rodríguez, Isidoro Romero, José Fernández-Serrano and Paulino Montes-Solla. The authors are grateful to a considerable number of individuals in Andalucía, Madrid and other locations who participated in the study and provided valuable insights as well as assistance in tracking down other interviewees. The complete list of interviewees and workshop participants is listed in Annex IV.

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## LIST OF ABBREVIATIONS

- ADIF Spanish Railway Infrastructure Management Body
- AERÓPOLIS Andalusian Aerospace Technology Park
- AIR Annual Implementation Report
- AVE Spanish High-speed Train
- CATEC Advanced Centre for Aerospace Technologies
- CDTI Spanish Centre for Technological Industrial Development
- CEA Andalusian Confederation of Businessmen and Women
- CITIC Andalucía Centre of Innovation, Information and Communication Technologies
- CSF Community Support Framework
- CTAP Andalusian Stone Technology Centre
- EC European Community
- ECA Competitiveness Strategy for Andalucía
- ECTA Andalusian Tourism Situation Survey
- EDAR Wastewater Treatment Plant
- EPSA Andalusian Public Agency for Industrial Land
- EU European Union
- FEDEA Foundation for Applied Economic Studies
- ICO Spanish Institute for Official Credit
- ICT Information and Communication Technology
- IDEA Andalusian Agency for Innovation and Development
- IFA Andalusian Promote Institute
- JEREMIE Joint European Resources for Micro to Medium Enterprises
- JESSICA Joint European Support for Sustainable Investment in City Areas
- MOPU Ministry of Public Works and Urban Development
- NOP National Operational Programme
- NSRF National Strategic Reference Framework
- OECD Organisation for Economic Co-operation and Development
- OP Operational Programme
- OSE Observatory on Sustainability in Spain
- OTRIs Offices of Research Results Transfer
- PCTC Cartuja Scientific and Technological Park
- PDIA Andalucía Master Plan for Infrastructure
- PFA Andalusian Forest Plan
- PTA Andalucía Technology Park

- R&D            Research and Development
- RDP            Regional Development Plan
- RENPA        Network of Protected Natural Spaces of Andalucía
- RETA         Technological Spaces Network of Andalucía (RETA)
- ROP            Regional Operational Programme
- RSP            Regional Strategic Planning
- RTDI         Research, Technological Development and Innovation
- SEA            Single European Act
- SMEs         Small and Medium-sized Enterprises
- TEA            Entrepreneurial Activity Rate
- TFNOP        Technologic Fund National Operational Programme
- UDF            Urban Development Funds
- UTE            Temporal Joint Ventures
- ZAE            Special Action Zones



## EXECUTIVE SUMMARY

In the last few decades, several measures have been taken to reduce the gap between Andalusian and European standards through the implementation of programmes, all of which shared the common goal of fostering economic development in Andalucía, achieving its convergence with Europe and ensuring the fair distribution of benefits between its citizens. Since the late 1980s, Andalucía has developed from one of the poorest regions in the European Community (EC), characterised by a lack of efficient transport and environmental infrastructure and low levels of education and female participation in the labour market, to achieving a substantial reduction in these and other deficiencies.

The Andalucía development strategy initially focused on increasing the connectivity of the region and facilitating access to other markets with the goal of achieving economic growth through large investments in transport infrastructure. Environmental infrastructure and reforestation were also stressed in the early programming periods and great importance was given to the expansion of university and secondary education in the 1994-1999 programme.

Infrastructure remained an important priority throughout the programming periods but increasing attention was given to nature preservation, RTDI and entrepreneurial competitiveness, technological transfer and the regional innovation system from 2000-2006 onwards. A large part of this strategic change was implemented through the multiregional national operational programmes. New financial instruments (JEREMIE and JESSICA funds) have been introduced in the current period and the setting of objectives has greatly improved with the introduction of intermediate forecasting of targets for 2010 in order to facilitate the ongoing monitoring of the programme. Unfortunately, the current programme has been affected by its late approval and the delay in the implementation of the information system as well as by the impact of the economic crisis.

Programmes in Andalucía were mainly supply side interventions aiming at releasing the growth potential hidden by the deficiencies in infrastructure. This strategy implied a very marked leading role of the public sector and a minor role for demand analysis and private agents' participation in the design and implementation of programmes. This approach facilitated the development of a great programme of investment in infrastructure, to which the ERDF resources were channelled.

However, this strategy might have limited the efficiency of certain actions, since the opportunity costs resulting from the selection of projects might have been ignored or not sufficiently evaluated. A greater role for demand side considerations in the designing of the projects could have determined that the interventions triggered major market expansions. Moreover, a larger participation of the private agents could have particularly enriched the ERDF actions in the later programmes, when the regional development strategy turned towards the enterprise, innovation and competitiveness fields. Andalucía would possibly have taken more advantage of the Structural Funds, if more attention had been paid to the opportunity costs of investment projects and if companies and private bodies had played a more significant role in promoting innovation and internationalisation of small businesses.

Overall, the industrial base of the Andalusian economy is still limited, consisting mostly of construction, tourism and other services. The lack of an entrepreneurial culture and the characteristics of the regional economic structure remain important weaknesses in Andalucía, as well as underinvestment in R&D and innovation in the private sector. However, the region boasts

numerous business parks, technology centres and science and technology parks. R&D investment has increased significantly from 0.6 percent of GDP in 1996 to 1.2 percent in 2010 with the investment in business R&D doubling from the 1990s, reaching 0.43 percent of GDP. Nonetheless, business R&D remained well below the national average of 0.7 percent, in 2010.

More importantly, Andalusian GDP per capita increased from 59 percent of the EU-15 average in 1996 to 66 percent in 2007 and experienced unprecedented employment creation with unemployment at merely 12.7 percent in 2007 from 32 percent in 1993. However, the low unemployment rate was short lived with the current financial crisis resulting in its rise back to over 30 percent.

Regional needs were met with different levels of intensity with ERDF investment grants varying in terms of the effect on different priority areas.

In the first programming periods of 1989-93 and 1994-99, there was substantial improvement of external accessibility and internal connectivity of Andalucía evidenced by the reduction in travel times and number of accidents. These positive results were due to an increase in road and rail infrastructure (65 and 35 percent respectively) that was clearly attributable to ERDF investments. Similarly, the ERDF's contribution to improvements made in hydrological infrastructure is evident, with increases in the proportion of the population connected to wastewater networks and in the volume of wastewater treated (despite diminished benefits due to some problems in the applications of the treatments). The ERDF provided infrastructure and equipment in education when the demand increased due to higher enrolment rates in secondary schools and universities. Environmental conditions and cultural heritage have also greatly improved in Andalucía due to ERDF funding.

Other effects of ERDF investment aid are more difficult to evaluate as some regional development needs, such as enterprise competitiveness and structural adjustment, have seen lower levels of improvement. In the development of industrial diversification, the needs for private capital and employment improved in the 2000s with ERDF investment grants playing an important role in employment creation and in the formation of private capital. Unfortunately, the industrial sector failed to take advantage of the high growth rates of the 2000s (with the exception of energy and construction sectors), which resulted in unsatisfied needs in structural adjustment. The weight of the industrial sector in Andalucía's economy decreased to a low level of 9 percent of regional Gross Value Added and employment (2007 figures). The diversification of the economy was mainly linked to the tourism and service sectors. In the current period, the economic crisis has led to an increase in these needs with diminished effects of ERDF investment grants due to a reduction in company investment.

The ERDF also contributed to meeting needs in RTDI, evidenced by university and research publications, as well as in the Andalusian regional innovation system through endowments to scientific and technological parks and technological centres. However, the regional innovation system remains dependent on public support and the role played by private actors and companies is still limited.

An important lesson from the experience of ERDF in Andalucía is the necessity of considering carefully the ex-post conditions for the projects' financial and operational sustainability when the actions are being planned and designed. In the case of Andalucía, the maintenance costs and the financial and operational viability of the interventions were often not properly evaluated. As a consequence, in particular cases the infrastructure built is not fully operational (i.e. some wastewater treatment plants in small municipalities). In other cases, the current budget crisis is

raising the risks that certain interventions (i.e. some technological centres) might become not operational in future.

The vast majority of ERDF actions were targeted at the creation of employment opportunities, despite the latter not being the main objective. The strategy was effective until the occurrence of the current economic crisis in 2008/09 and led to the significant increase in employment in Andalucía which has now been curtailed by the fall in company investment.

Overall, both econometric simulations and participants' assessments in the online survey suggest that ERDF investments have had a large impact on the rate of growth and employment in the late 1990s and 2000s through increased accessibility and integration with European markets as well as investment incentives.

Despite the current financial and real estate crisis, Andalucía has undergone a significant modernisation of its infrastructure, environment and human and knowledge capital, as well as improvements in the quality of life. A large part of the achievements is attributable to ERDF investments which have led to the capitalisation and upgrading of the Andalusian economy and society in a relatively short amount of time. However, additional challenges remain to be solved with the desired increased participation of private actors.

## 1. INTRODUCTION

Andalucía is one of the largest and most populated regions of Spain. It has a surface area of 87,268 square kilometres and a population of 8.5 million people comparable to or even higher than many small European countries. Andalucía is a peripheral region in Spain as well as in Europe and occupies most of the south of the Iberian Peninsula. Its east-west axis extends from the Atlantic to the Mediterranean: from the border with Portugal and the Atlantic coast in the western provinces of Huelva and Cádiz, through Seville, Córdoba and Jaén in the Guadalquivir valley, to the eastern provinces of Málaga, Granada and Almería in the Mediterranean.

**Map 1: Location of Andalucía in Spain**



Source: Map of Convergence Regions in Europe and Spain, DG Regio, EC.

Andalucía has a diverse and spectacular landscape and a rich natural heritage. The national park of Sierra Nevada (provinces of Granada and Almería) and the national park of Doñana (provinces of Huelva and Seville) were both declared World Heritage sites in 1994 by UNESCO.

Andalucía experiences climatic variety within the region, but is predominantly mild especially in many of the coastal areas. Rainfall is irregular, producing a hydrological regime characterised by summer droughts that alternate with episodes of torrential rains that increase erosion. Nevertheless, the geography and climate are natural advantages that allowed Andalucía to develop an important agriculture sector and, more recently, a large tourism industry. However, the mountain ranges, which are a feature of its rugged geography, hinder external communications with the rest of Spain as well as internal communications within the region. Regional development has been constrained by the limited external accessibility and the internal disconnection between west and east Andalucía and between the interior and the coast (especially in the far east of Andalucía).

Andalucía has a wide and rich historical, artistic and cultural heritage ranging from the prehistoric and Roman periods to a collection of unique Arab architecture and monuments. The region also has an outstanding personality with a traditional cuisine and interesting customs, one of whose leading

exponents is 'flamenco', today declared as the intangible heritage of humanity. These values, along with the wealth of natural heritage, have played a major role in the diversification of tourism and the revitalisation of inner areas with scenic and cultural attractions.

Andalucía failed in its industrialisation process at the end of the 19th and the beginning of the 20th century, and this has led to a continued weakness in the industrial sector in the region. Among other reasons, this failure can be explained by a lack of a real entrepreneurial tradition. Major land proprietors, who might have contributed to the diversification of the regional economy, did not assume a leading role in this process but instead remained focused on traditional agricultural activities. Economic and social conditions for agricultural workers were hard as a rule, and educational backwardness and poverty were common problems in the rural areas of Andalucía until recent decades.

The disadvantaged situation of Andalucía in the national context was consolidated in the first part of the 20th century. Traditional agriculture did not evolve towards a capitalist-type of agriculture until the 1950s and 1960s, and industrialisation was basically restricted to the agro-industry and some specific sectors (for example, within the chemical and refinery sector). Since the 1950s, the transformation of the regional production system implied an increasing role for the industrial sector and, mainly, services at the expense of the primary sectors, which experienced diminishing participation. The change towards a service economy was later reinforced by the industrial crisis in the 1970s and 1980s, by the continuous decrease in primary sector participation and the expansion of tourism.

The entry of Spain into the European Community (EC) in 1986 coincided with the process of the unification of the Single Market and the implementation of the new Cohesion policy. At that point in time, Spain still suffered from a considerable economic backwardness and many of its regions, including Andalucía, were amongst the least developed in the EC. Consequently, Andalucía as a whole was eligible for EC funds as an Objective 1 region in the first programme period, and it remained eligible for the Convergence objective in the current 2007-2013 funding period.

The EC entry signified opportunities, but also large challenges for Andalucía. The regional economy had to integrate into a wide common market, exploiting the competitive advantages associated with its traditional specialisations (agriculture, agro-industry, tourism). However, at the same time, Andalucía needed to diversify its production system and to develop new competitive advantages in other high value-added activities. This transformation had to be accompanied by an increase in foreign trade, and also by a complete integration of the regional market through a better connection of the western and the eastern parts of the region. In order to achieve these goals, weaknesses in transport infrastructure and entrepreneurial and human capital were the main bottlenecks.

This report combines and integrates different information from documentary sources depending on the availability in each programme period (Operational Programmes, annual progress reports and final reports), as shown in Annex V. The evaluation methodology used official documents, evaluation reports and basic statistics as resources and also drew upon the views of experts and several beneficiaries of major projects involved in strategy development and programme management. In addition, an online survey was carried out on the effects of the ERDF in Andalucía



and a workshop was organised with the aim of the exchange of information and views on these issues.

The online survey allowed complementing the fieldwork and desk research, and enhancing triangulation. This questionnaire was directed at 499 email addresses, comprising the interviewees, plus representatives from local authorities, firms, regional and local socio-economic partners and interest groups. The questionnaire returned an overall response rate of 19.8 percent and a completion rate of 8.0 percent. The questions and a summary of responses are presented in Annex VII.

Due to the lack of original programming documents in the early stages, other sources of information were used. Thus, in the first programme period (1989-1993) the information was completed with the Community Support Framework (1989-1993) for the Objective 1 regions in Spain, the Regional Development Plan (RDP, 1989) of Spain (1989-1993) and the ERDF Andalucía Report (1989-1993) produced by the Directorate-General for Economic Planning and Community Funds of the Government of Andalucía (1994). In the second programme period (1994-1999), the Andalucía Global Grant (1994-1999), the Doñana Phase II Operational Programme (1994-1999) and the report to the Monitoring Committee Andalucía (1999) were used in order to complete the information provided by the Operational Programme of Andalucía (1994-1999).

Separate databases have been built using information obtained from the documents and reports and financial amounts have been allocated to various measures implemented in different programme periods. In addition, a database of the achievements and results indicators collected from the final implementation report of the Andalucía 1994-1999 Regional Operational Programme (ROP) has been built.

The report is divided into seven chapters. Chapter 2 contains a brief description of the economic and geographic characteristics of the region and an overview of the main development needs. Chapter 3 discusses the relevance of the explicit and implicit objectives in the different programme periods with regard to Andalucía's development needs, commenting on how strategic responses were articulated and programmes tailored to the needs of the region. Chapter 4 presents a detailed analysis of the distribution of expenditure (planned and implemented) in each of the programme periods and their distribution across thematic axes.<sup>1</sup> Chapter 5 gives a detailed analysis of the main achievements of Cohesion policy in Andalucía over the different programme periods and major themes of objectives/needs. It begins with an overview of achievements at the programme level for each period, and it finishes with a detailed analysis by thematic targets in each of the programme periods. Chapter 6 consists of the evaluation of achievements in relation to the objectives and development needs (effectiveness and usefulness). Chapter 7 presents the main conclusions of the report. All expenditure figures are presented in €, 2000 prices unless otherwise stated in the text.

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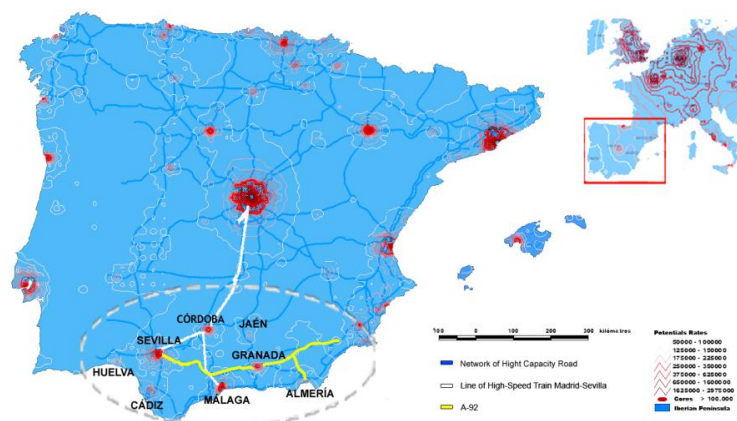
<sup>1</sup> In the first period, 1989-1993 only the amount spent on the entire Community Support Framework (CSF) is available and in the current period, 2007-2013, the distribution of spending by categories is not significant yet.

## 2. REGIONAL CONTEXT AND ANALYSIS OF NEEDS

In the 1980s, Andalucía was one of the poorest regions in Europe. Peripherality (remoteness) and territorial disarticulation (lack of connectivity) were a major geographical hindrance at that time. At present, these problems are less important due to improvements in the transport infrastructure (highways, roads and railways).

The population and economic activities are concentrated in major urban centres around the three cities of Seville, Málaga, and Cádiz and in some coastal areas. However, despite this geographic concentration, income and living standard disparities are not particularly remarkable in the other major cities and towns in the intermediate system, or in sparsely populated inland areas.

Map 2: Location of Andalucía in Europe

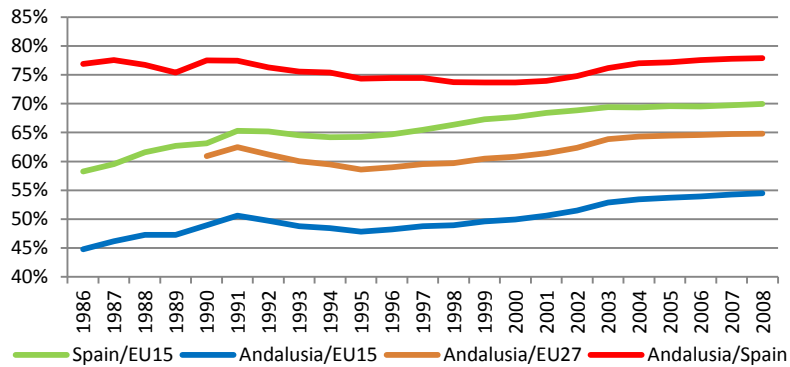


Source: López-Rodríguez and Faiña (2006).

### Economic development

Andalucía was a region with a significant delay in development in comparison with the rest of Spain and even more so in comparison with the EC. In 1985, it was the penultimate Spanish region by level of development, and its per capita GDP did not represent more than 78 percent of the Spanish average (the poorest province, Granada, reached a mere 67 percent of the Spanish average) (RDP, 1989). Productivity was extremely low and, with the exception of natural resources, the region had serious shortcomings in all types of capital endowments, transport infrastructure, water and energy, social infrastructure, human capital and worker training (skill shortages). There were also substantial deficiencies in private equity, technical and production equipment, and organisational and entrepreneurship capital (business managerial capabilities and entrepreneurship).

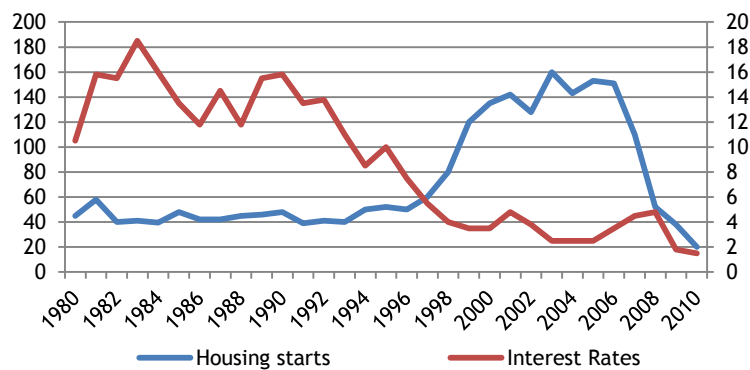
**Graph 1: GDP pc (in constant value € in 2000) of Andalucía on Spain, EU15 and EU27**



Source: Own elaboration with Core Team data.

The integration into a wide currency area with low interest rates and an unlimited supply of credit generated a strong boom in the Spanish economy and a rapid development of real estate and construction sectors in the first decade of this century. The impact of the crisis and the bursting of the bubble led to economic deterioration, bankruptcies and rising unemployment, which reached truly devastating levels in Andalucía.

**Graph 2: Home building and interest rates**

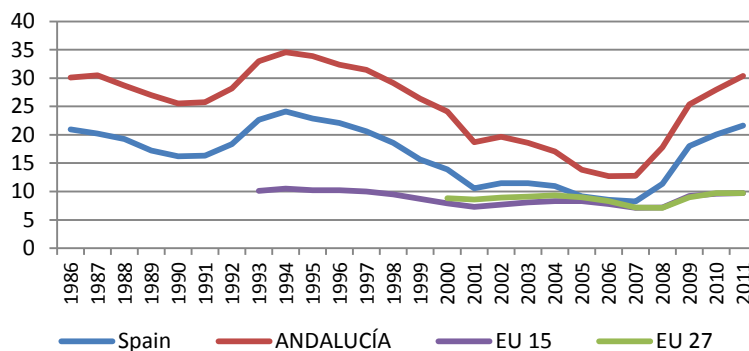


Source: Consejería de Economía, Innovación y Ciencia (2011a).

## Employment

Historically, unemployment has been one of the major weaknesses in Andalucía and the region still has the largest unemployment rate in Spain.

**Graph 3: Unemployment rate**



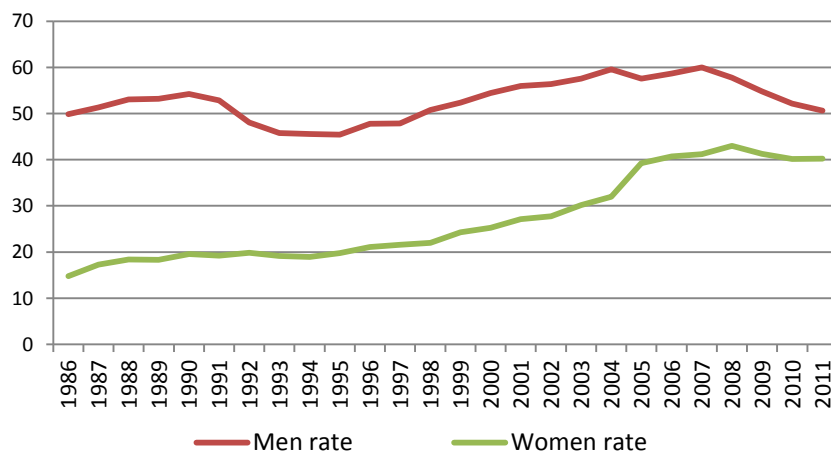
Source: Consejería de Economía, Innovación y Ciencia (2011a).

The phases of the development of the regional economy have had large implications for the labour market. Graph 3 depicts the evolution of the unemployment rate in Andalucía, Spain, the EU15 and the EU27 from 1986 to 2011. When Spain joined the EC, in 1986, the unemployment rate stood at 30.5 percent, measured with more restrictive criteria than today. Following the entry into the EC, unemployment fell in both Spain and Andalucía during the second part of the 1980s. However, it rose again due to the economic crisis at the beginning of the 1990s. Since then, a sound trend of reduction in the unemployment rate continued until the current economic crisis. The regional economy created jobs at a higher rate than Spain during this growth phase of the 2000s.

The negative counterpart of this extensive growth process was stagnant productivity and the housing bubble. The unemployment rate fell to a minimum value of approximately 13 percent before the crisis. However, after the bubble burst, it rapidly increased to over 30 percent, more than 7 percentage points above the unemployment rate for the entire country.

A very illustrative feature of the backwardness of Andalucía in the 1980s was the low participation of women in the labour market. The female employment rate in Andalucía was only 18.7 percent in 1989. Since then, women have gradually gained better access to the labour market, as a result of the economic and sociological modernisation of the region. The steady increase in the female employment rate was mainly observed since the second part of the 1990s (the female employment rate only increased to 20.9% in 1994). The spectacular change in female employment rate since 1995 has led to doubling its value up to 40.2% in 2011.

**Graph 4: Employment rate by gender**



Source: INE (2012).

With regard to human capital, a comparatively low level of workforce qualification (skill shortages) and mismatches between the supply and demand of skills can be pointed out as significant weaknesses in Andalucía. Deficiencies related to education are commented on in further detail below.

### Enterprise and innovation

The lack of entrepreneurial and corporate culture (venture capital and management skills), along with business environment conditions unfavourable to entrepreneurship, have historically acted as

major obstacles to regional development. Andalucía is characterised by a low business density (number of businesses per 1,000 inhabitants) in the national context. At the end of 2010, the business density in Andalucía was 58.4 businesses per 1,000 inhabitants, around ten businesses below the average for the whole of Spain (68.9). Moreover, self-employed and micro-businesses represent over 95 percent of the total number of businesses in Andalucía. In this respect, the insufficient presence of large companies and SMEs represents an important weakness in the Andalusian economy (Romero and Santos, 2007).

However, in line with the general trend in Spain, significant progress has been made. Between 1999 and 2009, the number of registered companies in Andalucía increased by 42 percent, exceeding the Spanish average of 33 percent. Furthermore, Andalucía improved its position among all the regions of Spain in terms of entrepreneurial activity (Ruiz Navarro *et al.*, 2010). At the same time, the percentage of self-employed (without employees) in the total number of businesses is diminishing in favour of businesses with employees (though mainly in favour of micro-enterprises with fewer than 10 employees). Furthermore, the average business size is rising (CEA, 2012).

Another important weakness of the productive system in Andalucía is associated with technological backwardness and underinvestment in R&D and innovation, especially in the private sector. The low levels of business R&D observed in Andalucía are a result of the peripheral position of the region,<sup>2</sup> the lack of an entrepreneurial culture, the small average business size, and the characteristics of the regional economic structure (predominantly light industries, commercial and consumer services, agriculture and other activities of relatively low value-added).

These deficiencies have been reduced in recent decades. Today, Andalucía has a wide range of business parks, business service and innovation centres, technology centres and science and technology parks such as Andalucía Technology Park (PTA) in Málaga, Cartuja Scientific and Technological Park, and the Aerospace Technology Park of Andalucía (Aerópolis) in Seville. R&D investment has increased significantly from 0.59 percent of GDP in 1996 to 1.20 percent in 2010. However, the R&D effort of Andalucía is still below the Spanish average (1.37 percent in 2010). The gap in terms of public R&D is not significant now, but the transmission of the effects to the private sector is slow and requires more time to develop. Business R&D investment did not reach 0.2 percent of GDP in the 1990s, but it has now doubled, reaching 0.43 percent of GDP. Nonetheless, it remained well below the national average of 0.71 percent in 2010.

### **Economic structure**

The traditional structure of the regional economy had certain backward characteristics: lack of diversification, small industry, and a significant weight in the primary sectors. However, in recent decades, Andalucía has experienced a strong expansion of the services sector mainly linked to tourism (with a consequent attraction for the construction sector). Whilst the weight of the primary activities has been reduced, there have been substantial modernisation and innovation efforts in these sectors. A specialisation process in those products where the climate provides a competitive advantage (fruits and vegetables) has been accompanied by improvements in marketing and

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<sup>2</sup> The incentives and opportunities for investment in education and human capital in a region are reduced in a peripheral location (Reading and Schott, 2003; López-Rodríguez, *et al.*, 2007).

technology, such as the introduction of irrigation drip and intensive farming. These changes provide a competitive and export-oriented basis for the food industry.

Along with its important food industry, Andalucía also has a heavy industry segment (energy, chemicals and transport equipment). The construction sector played an important role in the growth of the regional economy, but, as in other regions of Spain, it has been hit hard by the financial crisis and recession since 2007. The regional economy has developed some clusters in high value-added sectors, such as aeronautics and information and communication technology (ICT). The Andalucía aeronautics industry, with clusters in Seville and Cádiz, represents 1.4 percent of the regional GDP and 29 percent of the employment in the sector in the whole of Spain (Ministerio de Fomento, 2012).<sup>3</sup> The ICT sector contributes almost 3 percent to the regional GDP (Consejería de Economía, Innovación y Ciencia, 2011b). The main foreign and national companies operating in Andalucía are located in Málaga and Seville. It is also worth mentioning the case of Abengoa, as a large Andalusian company with 26,261 employees and a high international presence operating in the engineering and renewable energy sectors. Andalucía is among the leading Spanish regions in biomass, photovoltaic installations and wind installations. The bio-health sector, with clusters in Granada and Jaén, is also emerging. Andalucía is the second autonomous region in Spain in the bio-health industry, representing 19 percent of the sector in Spain.

## Environment

Andalucía has a vast territory with large natural areas and a rich and varied landscape that has been largely preserved over the years. In the north, the massif of the Sierra Morena separates the region from the rest of Spain, while the Mediterranean Sea and Atlantic Ocean coasts delimit it in the south. It has mountains with a height of over 3,000 metres, a desert in Almería, parks, forests, rivers and a large coastal area with cliffs, beaches and coastal plains. Most of this landscape is home to unique ecosystems, and a good part of the territory (around 20 percent) is declared as a protected area.

Andalucía is part of 'dry' Spain, where water resources are limited. In the early 1980s, there were serious deficiencies in the infrastructure of the water supply. Many towns, including Seville's own metropolitan area, did experience supply restrictions in the driest seasons. Investments in water supply, distribution and purification have been a major priority of development in Andalucía, such as regulating basins (irrigation and flood control risk) and the maintenance of the water balance.

Today, the main remaining needs in the environmental field are those related to water treatment and purification in small and medium-sized municipalities. In this respect, Andalucía still has important needs and is facing difficulties in fulfilling the requirements of the Urban Waste Water Treatment Directive. The conservation of forest, under risk especially due to the effects of fires and natural processes, is also a cause for concern.

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<sup>3</sup> One of the key aircraft assembly lines on a European scale is located in Andalucía (together with those in Toulouse and Hamburg) for the Airbus Military model A400M. Another large aeronautics project in the region comprises the Airbus A350, an aircraft for civil transport with significant work packages developed in Andalucía.

**Map 3: Natural Parks**



Source: Own elaboration.

### Transport infrastructure

In the late 1980s, Andalucía had serious gaps in infrastructure. Road communications with the rest of Spain through the Sierra Morena in the centre were poor, as in the Sierra de Arcena in the northwest, and in the east (in the north towards Murcia and Almería to the south). The region itself was deeply disjointed internally and lacked reasonable road communication in its transverse axis (east-central-west). The RDP (1989) stated that this situation caused the ‘geographical disconnection’ between important areas in Andalucía, Seville and the Guadalquivir valley, on the one hand, and Granada and Almería, on the other, that is, between western and eastern Andalucía. Today, a large part of these needs have been met whereby Andalucía possesses highways and road endowments comparable to those in many regions of the most developed European countries, satisfying the main regional needs.

In the case of railway infrastructure, there were also important deficiencies in the 1980s regarding both the internal connections within the region and the external connections with the rest of Spain. These days, due to the development of the high-speed lines with Madrid from Seville and Málaga, the connectivity with the rest of Spain has reached a satisfactory level. However, some needs still exist, mainly related to improvements in the transversal regional network and in the fields of intermodal connections and metropolitan-urban transport, all of which are heavily dependent on cars.

The main needs regarding airport and port infrastructure, as observed in the second part of the 1980s, have also been addressed. At present, six airports connect the region to different cities in Spain and Europe and to a few non-European destinations. The most important airport in the region is the Málaga-Costa del Sol airport, with a large concentration of passengers due to tourism. The port of Algeciras, one of the most important in Spain, provides international trade services and moves a significant proportion of container traffic in the Mediterranean. The port of Málaga is the second most important in Spain for cruise ships.

**Map 4: Andalucía Territorial Articulation**



Source: Own elaboration.

### Health and education

In the late 1980s, Andalucía had an insufficient hospital and health infrastructure that was below the national standards. The hospital and health centre facilities have substantially improved in line with the rest of Spain. However, the comparatively unfavourable situation with respect to the Spanish averages remains. The number of hospital beds per 10,000 inhabitants only reached 78.6 percent of the national average in 1996 and the gap remained the same in 2005. The public health expenditure per capita in Andalucía was 89.5 percent of the average of the regions in Spain in 2009. Nevertheless, the health system in Andalucía has a good service quality overall and meets social needs reasonably well.

Similarly, there were serious deficiencies in education infrastructure in the 1980s, with provisions in primary and secondary centres lower than Spanish averages. In 1991, 29.5 percent of the Andalusian population aged 16 years or older was illiterate or had not finished primary-level education. In 2006, this percentage fell to 17.1 percent, and net schooling rates currently reach 100 percent of the population aged between 3 and 15 years old. Andalucía has improved educational facilities, though the indicators still show a position below the Spanish averages. In 2008-2009, the number of students per class in Andalucía was slightly above (though close to) the Spanish averages in all educational levels of non-university education, with the exception of special education.<sup>4</sup> The expenditure per student in public centres in non-university education in Andalucía was 82 percent of the Spanish average in 2006.

Andalucía presents results in the OECD PISA programme far below the Spanish and OECD averages, occupying the lowest positions among the ranks of Spanish regions participating in this evaluation project (Ministerio de Educación, 2010). The dropout rates, though diminishing, are also above the OECD and Spanish averages. In 2010, 34.7 percent of the Andalusian population between 18 and 24 years old had not finished the Compulsory Secondary Education (ESO) and was no longer studying. This dropout rate was 28.4 percent in the case of the whole of Spain (Ministerio de Educación, 2011).

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<sup>4</sup> For instance, in primary education the ratio of students per class was 21.9 in Andalucía and 21.1 in Spain; in compulsory secondary education, it was 25.9 in Andalucía and 24.3 in Spain, and in higher professional education it was 22.5 students per class in Andalucía and 18.7 in Spain.



University provision was also insufficient in the second part of the 1980s, when there were five universities in Andalucía. Today, there are ten universities located in Andalucía, with Granada and Seville being the largest (OECD, 2010). The proportion of university graduates is currently similar to the average of OECD countries (28 percent). However, there is a low proportion of population with secondary education (20 percent compared to a 41 percent average in the OECD), and an extremely high proportion of the population with just primary education or with no formal education (51 percent), which represents a major weakness (OECD, 2005).

### **3. PROGRAMME EVOLUTION AND RELEVANCE**

#### **3.1 Explicit and implicit strategies and their evolution**

It was clear from the outset that Andalucía would be eligible as an Objective 1 region. Consequently, regional development plans were put forward in order to assess regional needs and to design lines of action and development objectives. The Regional Development Plan (RDP) was prepared by the regional and central governments and was approved by the Public Investment Committee with the participation of the Autonomous Communities (regions) in order to enable access to European support from Structural Funds.

Following the assessment of Andalucía's development needs, the main strategic options were agreed upon and put into the framework of the CSF, together with the actions to be taken and the priorities selected for support. Moreover, the allocation of funds to these priorities was determined. It is worth mentioning that the CSF was instrumental in ensuring the alignment of the Structural Funds' operations to Andalucía's strategic options and development needs.

The CSF for Objective 1 regions is European Cohesion policy's main tool for the coordination of funding from different Structural Funds, not only from that of the ERDF but also from the European Social Fund (ESF) and, up until 2007, the Guidance Section of the European Agricultural Fund (EAFGS) and the Financial Instrument for Fisheries (FIF). The CSF is a planning-programming instrument negotiated by the European Commission and the regional and central governments, which provides guidelines for the structuring the different Operational Programmes (OPs) in line with the region's needs and which determines the amount of funding to be allocated to the different programmes as well as to the separate priority areas within them. The CSF mainly designs two types of OPs, regional and national or multiregional OPs. Regional Operational Programmes (ROPs) focus on their regional territories, whereby the central and regional governments play a key role in managing the priorities according to their respective competences. The multiregional or national OPs (NOPs) normally focus on the whole set of Objective 1 regions, usually concentrating on a specific priority area (e.g. incentives for attracting investment for backward regions, local development, scientific development, etc.).

The explicit goal or objective was to overcome regional backwardness and reinforce economic growth in order to achieve modernisation and upgrading of Andalucía with European standards (income, productivity, product quality and diversification of the economic structure). The implicit strategy reflected the goals set out in the programming documents and was generally in line with the regional government's intention to unify the western and eastern parts of Andalucía. The mostly tight fit between implicit and explicit strategies from 1989 to date was also conditioned by the ERDF involvement in the appropriate budgetary allocations for the policies of the region.

The evolution of the programme strategies over successive periods has followed a consistent pattern with the initial programmes focusing heavily on transport infrastructure, with an increasing focus on enterprise and innovation to directly address the low level of competitiveness in the region, with transport infrastructure remaining an important priority all the way through to the current period.

### **3.1.1 The bases of development: articulating and 'unlocking' the territory with the help of the new Cohesion policy (1989-1993)**

In this period, the backwardness of Andalucía was perceived to be a consequence of the serious lack of infrastructure and investment into the region, and therefore most actions aimed at creating infrastructure were seen as synergy-generating actions that would lead to the release of endogenous economic growth potential. For this reason, programmes in Andalucía were developed from a supply side perspective more than driven by demand side considerations. The programmed interventions were expected to trigger later expansions of the demand side of the market.

The adopted strategic option concentrated on breaking the isolation and dislocation of the region. The foremost priority, in terms of the financial volume as well as other resources including labour and materials, was transport infrastructure. The CSF's second strategic priority throughout the 1989-1992 programme period was the environmental supply, regulation and sanitation of water, another area that was severely lacking in Andalucía throughout the early 1990s. Less relevance, but far from negligible importance, was given to structural adjustment and, to a lesser extent, to other needs in the fields of enterprise, innovation, education and social cohesion.

Time was required for the development of EU regulations and the preparation and implementation of the programme documents. This led to an exceptional feature in the first programme period of 1989-1993 in that the eligibility of funding commenced at the beginning of 1989 even though the CSF for the Spanish Objective 1 regions was not approved by the Commission until 31 October 1989.<sup>5</sup> The OPs were approved several months later, and it was for this reason that the CSF played an important role in the coordination of operational activities.

The CSF determined different sets of programmes.

- Multi-regional NOPs with interventions in Objective 1 regions that performed crucial actions in Andalucía, focused on:
  - Motorways
  - Regional incentives
  - Scientific infrastructure
  - Environment and water resources
  - Local development
- An exceptional characteristic of Andalucía in this time period was the division of the most disjointed parts of Andalucía into six territorial areas (Almería, Málaga, Bajo Guadalquivir, Jaén-Granada and Huelva and the area around the Doñana Natural Area) for which:
  - Six territorial OPs were designed.
- Three thematic ROPs were implemented for the entire region:
  - A Global Grant, oriented to entrepreneurial dynamism and productivity was formed
  - Integrated programmes for the Andalucía Forest Plan were created
  - Agricultural Infrastructure Improvement.
- In addition to the programmes listed above, the CSF included a wide range of individual annual or multi-year projects, whereby 47 percent of the funding was allocated to infrastructure mainly for transport and the environment. In this period, the CSF played a

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<sup>5</sup> This meant that regional and central governments were entitled to reimbursements of the expenditure allocated to the CSF prior to the Commission approval.

leading role in the allocation of projects, according to its strategic guidelines, and in determining the lines of action to be supported by the ERDF. However, the large ROPs undertook this role in the following programme periods.

The multi-regional programmes (NOPs) focused on the following lines of action:

- the motorway NOP focused on building new motorways connecting the region to other parts of Spain, such as the Seville-Madrid connection;
- the regional incentives NOP provided investment aid to attract capital and business projects to the region;
- the scientific infrastructure NOP provided grants for buildings and equipment;
- the environment and water resources NOP addressed environmental protection and the lack of infrastructure for water supply and purification as well as wastewater collection; and
- the local NOP served municipal needs in local development infrastructure.

The regional programmes (ROPs) concentrated on three thematic areas of entrepreneurial dynamism and productivity (Global Grant), integrated programmes for the Andalucía Forest Plan, and agricultural infrastructure improvement.

The actions of the six territorial OPs most frequently concentrated on transport infrastructure and the environment (water) as well as support for economic activities. These actions were aligned with the goals and objectives outlined in the strategy of the RDP and the CSF. However, the territorial OPs were in an advantageous position, enabling them to determine projects based on the specific needs of the individual territories:

**Map 5: Territorial OPs in Andalucía 1989-93**



Source: Own elaboration.

- The Almería OP<sup>6</sup> focused on the ‘unlocking’ of the area, addressing the serious problems of water supply, technological innovation in the field of greenhouse crops and marketing support and access to foreign markets.

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<sup>6</sup> Technically, the Almería OP was a Community Initiative.

- The OP in Málaga concentrated on the economic diversification of the area, on knowledge resources with a focus on innovation and technology as well as on the quality of tourism, with a strategy focused on knowledge.
- In the north of Huelva, the OP was oriented towards mining areas, the search for alternative technologies, restructuring and repairing environmental damage, as well as on nature and cultural and gastronomic tourism in the mountainous areas of the Sierra de Aracena.
- In the south and east of Jaén and Granada, importance was given to improving the accessibility of its population centres and to the recovery of historic cultural heritage.
- Investment in tourism and heritage rehabilitation, the creation of industrial land and the treatment of solid waste (plastics for agricultural use) were prioritised in the Bajo Guadalquivir territory.

For the most part, the central government was responsible for the NOPs,<sup>7</sup> managing 23 individual projects, whereas the remaining 100 individual projects fell into the jurisdiction of the regional government. The individual projects, which were significant in size, mostly focused on infrastructure in the areas of transport and environment as well as on education and business services. Although the regional programmes were the shared responsibility of both the central and the regional governments, the majority of these actions were undertaken by the regional government. This confusing situation was resolved by differentiating between two sections in the CSF, the regional (CSF-R) and the multiregional (CSF-MR) sections, which defined the actions in the remits of the regional and central governments.

The 1989-1993 CSF was divided into six priority axes. Priority 1, transport infrastructure, was allocated funding of €3.2 billion (65 percent of the total). The fundamental strategic priority was to improve accessibility within the region as well as to the rest of Spain and Europe through the construction of new motorways and road and rail infrastructure.

The second largest priority, Priority 5, was allocated funding of €0.8 billion and mainly concentrated on the creation of infrastructure for the environment (water supply and sanitation) and to a lesser extent, on energy networks, scientific-technological infrastructure and health.

Priority 2 (€0.6 billion) was dedicated to supporting business activities, crafts and industry through investment grants, the provision of industrial sites and enabling access to financial instruments for SMEs (mutual guarantee societies). It also invested in tourism infrastructure and in education.

### ***3.1.2 The CSF 1994-1999: Strengthening environmental infrastructure and modernising the productive system***

For the 1994-1999 period, the system of planning and programming in Spain was consolidated, and therefore the CSF for Objective 1 regions was adopted without encountering the problems experienced in the previous period. Moreover, the need to implement individual projects outside of the regular Operational Programmes was eliminated.

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<sup>7</sup> An exception is the participation of the regional government of Andalucía in the environmental NOP.

The CSF encompassed large Regional Operational Programmes for each region according to its individual strategy and development needs. This was territory-oriented programming managed by both the regional and central governments in line with their respective competences, giving the CSF its characteristic regional dimension.

The 1994-1999 CSF of Andalucía comprised one main Regional Operational Programme covering the six territorial areas used in the 1989 CSF as well as the rest of Andalucía. Two additional programmes are worth mentioning, one for the natural area of Doñana and the other specifically for the Andalucía Global Grant (enterprise policy).<sup>8</sup>

The multiregional programmes included the following National Operational Programmes:

- The Local Operational Programme, focused on the construction and renovation of small infrastructure in municipalities and local development.
- The Local Operational Programme for environmental infrastructure in municipalities.
- The Regional Incentive Programme.
- The Scientific infrastructure Programme.

A novelty in this programme period was the Cohesion Fund (CF), the purpose of which was to support investment in the trans-European transport networks (TENs) and in environmental infrastructure. The CF is not included in the CSF for Objective 1 regions, as it is active in large projects throughout the whole of Spain.

An important objective supported by the ERDF was trans-border cooperation between Spain and Portugal, through which important transport and environmental infrastructure was executed in this period.

The structure of the 1994-1999 CSF contained seven Priority Axes. Priority 1, Territorial Integration, focused on transport infrastructure and remained the main priority despite a slight reduction in resources allocated to the priority (€3.1 billion down from €3.2 billion in the previous period). This priority also contained significant investments into telecommunications infrastructure.

Priority 6 received the second largest financial allocation (€3.0 billion) and included environmental infrastructure (water and sanitation) and the conservation and protection of nature, as well as other infrastructure for healthcare, the information society and research and development (mainly for universities and research centres). The third important area in terms of the size of allocations was Priority 2, with up to €1.1 billion dedicated to actions related to regional incentives and investment aid for the creation, expansion and modernisation of enterprises. Other measures supported small and micro-enterprises, as well as handicraft trade, industrial land and urban development projects. With much smaller volumes (€347 and €213 million respectively), Priorities 4 and 5 were intended for investment in education and tourism infrastructure.

The key element for the ERDF strategy was the ROP of Andalucía. Its main goals were to improve the competitiveness of the economic and territorial systems of the region, to enhance economic growth with environmentally sustainable development, and to overcome difficulties impeding

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<sup>8</sup> Other small programmes were designed: the Seville SME Programme and territorial agreements for the Employment Operational Programme. There is a lack of documentation for these programmes, as they were not substantial in scale.

convergence with the EU. An important development in the strategy was the inclusion of mandatory secondary education and the building and renovation of secondary schools supported by the ERDF.

### ***3.1.3 The 2000-2006 programme: completing and consolidating the infrastructure network and enhancing competitiveness and innovation***

The 2000-2006 programme period had the highest level of funding of up to €11.3 billion. The weight of investment in transport infrastructure was significantly high in this period, due to the much-needed improvement and consolidation of some of the roads that faced significant geographic and geological challenges. Special attention was paid to road safety, as well as repair and conservation needs, which were of substantial size due to the scope and complexity of the network of motorways and roads in Andalucía. Throughout this process, the dimension of nature protection was taken into account with the inclusion of compensatory measures such as building sound screens and other protective measures for wildlife.

Nevertheless, a large volume of CSF funding for Andalucía in the 2000-2006 period was used to develop the knowledge economy (R&D) and innovation, to strengthen the field of conservation and biodiversity protection, and to extend the previous policy focused on environmental infrastructure (water supply and water treatment).

The CSF for the 2000-2006 period consisted of a large Regional Operational Programme for Andalucía as well as the following multiregional Operational Programmes:

- Research and Development
- Competitiveness and Development Production
- Information Society

Moreover, the Cohesion Fund co-financed environmental infrastructure together with the Andalucía ROP. Trans-border cooperation between Spain and Portugal continued to receive support in the framework of the INTERREG Community Initiative programme.

The CSF was structured into six main Priority Axes. Priority 6 was again allocated the largest volume of funding (€5.3 billion) and focused on transport and energy networks, comprised of major motorways and roads (€2.52 billion) and railways (€2.28 billion). These two groups of measures together used over 90 percent of the funding of the priority and 42 percent of the total CSF funding<sup>9</sup>. In this period, the construction of highways and roads was concluded, ending the focus on high-capacity internal links and on external access. In addition, improvement was made to provincial roads (enhancing accessibility to many remote places).

Railway construction and renovation projects (Jaén and Seville-Cádiz) were carried out on the conventional railway in the transverse axis Seville-Granada, as well as on the construction of the new high-speed train to Málaga.

With the second largest volume of funding at €3.0 billion (24 percent of the total), Priority 3 focused on the environment, natural habitats, water supply and wastewater management. The

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<sup>9</sup> Total expenditure in the field of Regional Infrastructure Endowment in the period reached €6.04 billion (48.1 percent of CSF total expenditure including ICT infrastructures -€248 million-, local roads and infrastructures -€277 million- and land reclamation and industrial sites -€217 million).

main change in this period was the weight given to the conservation of the natural habitat with an expenditure of €850 million representing 35 percent of the funding given to the priority (7.5 percent of the entire CSF spending).

Priority 1, which concentrated on improving competitiveness and employment, was in third place with funding of €1.7 billion (15 percent of the CSF) from the Andalucía ROP and the competitiveness NOP. The orientation towards strengthening productivity and business was reinforced through the multiregional programme, Competitiveness and Developing Production. Actions included providing traditional regional incentives and other assistance to attract and encourage business investment. Moreover, investment was directed towards intangibles driving business competitiveness (organisational capital, ICT, competitiveness diagnoses and other advisory services) as well as internationalisation.

Priority 2, named the Knowledge Society, focused on innovation and also occupied an important position in the overall allocations of the 2000-2006 CSF, with an expenditure of €844 million (7.4 percent of CSF spending), five times higher than that of the previous period. The regional and the Research and Development National Operational Programmes acted as channels for carrying out these actions. In summary, R&D was reinforced through the development of courses of action to support research projects and infrastructure in universities, enabling the transfer of technology, knowledge and applied research on issues of regional interest. Moreover, a regional network of research and technology centres was deployed with the intention of meeting the specific needs of Andalucía's productive sectors.

### ***3.1.4 Competitiveness Strategy: the 2007-2013 programme***

Within the newly named CSF, the National Strategic Reference Framework (NSRF), a major change in policy was undertaken in line with the region's new strategy, the Strategy for the Competitiveness of Andalucía (ECA, 2007), as well as with the objectives of the Lisbon Strategy and the National Reform Plan of Spain.

Objective 1 regions were renamed as Convergence regions. The NSRF consists of Andalucía's regional OP, as well as the following multiregional OPs, which are mostly directed at Convergence regions:

- Knowledge Economy, which focuses on public research centres, technology centres and the transfer of knowledge.
- Technology Fund, which is aimed at business R&D, technology centres and science and technology parks.
- ERDF-Cohesion Fund, which is directed at large projects for the trans-European transport infrastructure network (TEN) as well as environmental projects.

The NSRF has six Priorities in which the initial allocations for Andalucía are 14 percent lower than in the previous period, with a volume of scheduled spending of up to €9.7 billion (adjusted for inflation at 2000).

Priority 4, Transport Infrastructure, retains the largest proportion of allocated funds (€4.1 billion). However, at 35 percent of the NSRF, its relative weight is considerably lower than in previous periods and is closely followed by Priority 3, representing the environment, water and natural



environment and risk prevention, endowed with a €2.4 billion expenditure allowance (21.5 percent of NSRF).

Despite the reduction in funds, transport infrastructure remains an important element aiming at the completion of the motorway network with great emphasis on conservation measures and environmental adaptation, as well as on the renovation of motorways and roads improving the accessibility of different towns and areas to the high-capacity transport network (actions planned at more than 2000 kilometres). In railways, improvements to the Cádiz-Seville-Granada axis are being pursued.

Priority 1, Knowledge Economy, has experienced a large increase in funding to €2.1 billion (18.5 percent of NSRF). This large, newly appointed amount of spending stems from the Knowledge Economy (€772 million) and the Technology Fund (€1,015 million). The Andalucía ROP schedules spending of up to €363.4 million on innovation, providing major support to the transfer of knowledge with an emphasis on fostering cooperation between companies and research and technology centres in order to strengthen the regional innovation system.

The start of the 2007-2013 programme was delayed due to its late approval as well as the extension of the expenditure certification deadline for the previous period. As a result, insufficient implementation of actions has been made to allow an evaluation of the current programme period. However, the targets set in this period have been of a more precise nature and can therefore be used to obtain an initial insight into the realisation of the strategies guiding the programme.

### **3.2 Implementation factors that influenced programme strategies**

The formulation of strategies and development goals of the Spanish regions, particularly in Andalucía, was heavily influenced by Spain's entry into the European Community in 1987. At that time, Spain was lagging considerably behind the rest of Europe with many of Spain's regions among the least developed of the Community. Spain weighed the following advantages and disadvantages that would arise from membership:

- Increased foreign competition, resulting from integration into a wider market, reinforced by the removal of borders, and increased competition in the unified single market formed in 1992.
- The development of economic and social Cohesion policy facilitating investments aimed at reducing the development gap between different European regions.

Increased foreign competition had an impact on programme strategies in that it led to measures boosting the structural adjustment of different sectors aimed at increasing productivity and the quality of products and services in the region, as well as the development of entrepreneurial culture and managerial capabilities.

The development gap between Andalucía and other European regions was addressed through facilitated investments.

Regional incentive grants were given to support investment and job creation by modernising and upgrading productive processes and technology, as well as setting up new enterprises in selected industrial and service sectors (IT, aerospace, renewable energy, agri-food, and tourism).

### 3.3 Relevance of programmes to regional needs

The development problems of Andalucía were accurately defined in the 1989 RDP, enabling the formulation of the basic priorities and the strategic development of Andalucía. These priorities and development strategy met with a broad consensus and became the basis of the strategic guidelines in the CSF of Andalucía throughout the 1990s. Despite the large choice of priority areas, the development policy of Andalucía was focused on transport infrastructure from the outset. The reasoning behind this choice was that the upgrading of transport infrastructure would be a feasible way to achieve a broadening of the population's and peoples' horizons in a relatively short space of time by means of increased connections within the region as well as between the region and the rest of Spain and Europe. This would enable people and small businesses in the entire region to enlarge their commercial scope, thus increasing the value of their output and profits.

A strategy was formed, focusing on breaking the isolation of Andalucía as well as the internal separation of its territories through investment heavily concentrated on transport infrastructure. Major projects for the construction of motorways and roads were undertaken to unlock vast areas of the region, especially the most problematic, Seville-Granada, which became Andalucía's 'backbone'.

However, the priority given to the construction of the A92 motorway connecting Seville-Granada-Almería resulted in the delayed completion of the Mediterranean motorway linking Algeciras to Eastern Spain through Málaga and Almería. The latter could have generated greater economic benefits, as the coastal area is one of the most populated areas in the region and as the connection of Algeciras, the largest port in the region, to eastern Spain is of great importance.

The following Table 1 summarises the main development needs defined for the region throughout the different programme periods, the response to these needs, and the main features of the operational projects.

In the first programme period of 1989-1993, the choice to allocate the largest proportion of funding to the priority area of transport infrastructure was in line with the need to improve access to regional and foreign markets, resulting in a broadening of horizons, as described above. The call for water supply and sanitation was responded to through investments in water infrastructure. In addition, the need for the diversification of production and business development became apparent and a regional development agency was formed, specialising in enterprise policy. Moreover, the agency supported business development through the Global Grant, and regional grants were also delivered as specified in the CSF strategy. The strategy included general measures to tackle the large need for an increase in the level of education and qualification in the region.

**Table 1: Development necessities, responses and approach of the CSF 1989-2007**

	Regional need	Response	Project focus
89-93	<ul style="list-style-type: none"> <li>- Peripherality and territorial disarticulation</li> <li>- Water supply and sanitation</li> <li>- Diversification of production and business development</li> <li>- Low level of education and qualification</li> </ul>	<ul style="list-style-type: none"> <li>- Articulation and ‘unlocking’ the territory</li> <li>- Investment in water infrastructure</li> <li>- Promotion of tourism</li> <li>- Enabling spaces and offering support services to businesses</li> <li>- Investment in social infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>- Major projects: highways and roads - Madrid-Seville</li> <li>- Projects catchment and water supply and sewage</li> <li>- Tourism infrastructure and strengthening domestic tourism (‘tourist villages’)</li> <li>- Global Grant supporting business</li> <li>- Technology parks and industrial land. Business Support Services</li> </ul>
94-99	<ul style="list-style-type: none"> <li>- Peripherality and territorial disarticulation (attenuated)</li> <li>- Water supply and sanitation (attenuated)</li> <li>- Diversification of production and business development</li> <li>- Low level of education and skills</li> <li>- Articulation and ‘unlocking’ the territory</li> </ul>	<ul style="list-style-type: none"> <li>- Strengthening of investment in environmental infrastructure</li> <li>- Support to the productive and industrial location factors</li> <li>- Development of compulsory secondary education (LOGSE)</li> </ul>	<ul style="list-style-type: none"> <li>- Highways and roads projects:                             <ol style="list-style-type: none"> <li>1) complete the vertebrate axes</li> <li>2) interprovincial and county networks</li> </ol> </li> <li>- Water supply and sanitation</li> <li>- Attracting foreign investment. Support for business creation and development</li> <li>- Industrial land and business parks</li> <li>- Secondary schools</li> </ul>
00-06	<ul style="list-style-type: none"> <li>- Improvement of internal and external integration of the territory</li> <li>- Moving towards the information society</li> <li>- Increase of spending on R&amp;D, especially in the private sector</li> <li>- Improvement of competitiveness and outreach</li> <li>- Improvement of the environment</li> <li>- Diversification of production</li> <li>- Social welfare</li> </ul>	<ul style="list-style-type: none"> <li>- Completion and consolidation of the network of transport infrastructure</li> <li>- E-administration and computerisation of citizen services</li> <li>- Promotion of regional innovation system. Promotion of intangibles (organisational capital, quality, innovation, ICT, etc.)</li> <li>- Protection of nature</li> <li>- Consolidation and development of tourism: Diversification and branding</li> </ul>	<ul style="list-style-type: none"> <li>- Investment in social infrastructure - construction and renovation of roads and highways. Investments in rail</li> <li>- Electronic Medical Records, emergencies, etc.</li> <li>- Centres and technology parks</li> <li>- Incentives for investment, innovation, export and internationalisation</li> <li>- Conservation and protection of natural areas. Supply and sanitation. Desalination of landfills</li> <li>- Tourism: Promotional campaigns, Innovation, INFRAEST, and cultural tourism (museums, heritage restoration)</li> <li>- Medical equipment, shelters, sports, leisure</li> </ul>
07-13	<ul style="list-style-type: none"> <li>- Lisbon Strategy and Competitiveness</li> <li>- Increasing business innovation</li> <li>- Improvement of internal and external integration of the territory</li> <li>- Nature conservation and biodiversity</li> <li>- Diversification of production</li> <li>- Social welfare</li> </ul>	<ul style="list-style-type: none"> <li>- Boost R+D+I</li> <li>- Promoting entrepreneurship (remove ‘subsidy culture’)</li> <li>- Reform of the system of incentives and reinforcement of financial instruments</li> <li>- Increased connectivity and quality of transport infrastructure</li> <li>- A commitment to nature conservation and biodiversity</li> <li>- Differentiation and quality tourism</li> <li>- Social infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>- Projects R&amp;D, transfer and technology centres and venues</li> <li>- Guarantees, loans and venture capital. JEREMIE and JESSICA funds</li> <li>- Expansion and improvement of the quality of transport infrastructure</li> <li>- Reforestation, risks preventing soil erosion and drag. Actions within and outside Natura</li> <li>- Sustainable tourism, innovation, valuation of historical and cultural heritage (restoration, museums, cultural centres)</li> <li>- Investment in education infrastructure, health, and sports</li> </ul>

Source: Own elaboration.

In the second programme period of 1994-1999, the strategy was adapted to meet the remaining, unmet aspects of the regional development needs identified in the first programme period. Within the priority of transport infrastructure, the programme continued to concentrate on the problem of

peripherality and territorial disarticulation by including measures to complete the vertebrate axes and interprovincial and county networks. The significant increase in ERDF funding was used to further meet the relevant needs in environmental infrastructure and natural protection as well as in structural adjustment for industry and education. An important development in the strategy was the inclusion of specific measures in the priority of education, for example the introduction of mandatory secondary education and the building and renovation of secondary schools and universities. The inclusion of these new actions complemented measures already undertaken to address needs that had been identified in the previous period.

The 2000-2006 strategy focused on the newly perceived importance of R&D (in universities and research centres), knowledge transfer and innovation (especially in the private sector) through the inclusion of plans for the construction of technology centres and parks,<sup>10</sup> as well as incentives for investments in innovation and the provision of services to support business competitiveness, exports and internationalisation. In the Priority of tourism, the strategy recognised the need for a shift in focus from tourism infrastructure to encouraging campaigns for branding the region and promoting tourism, giving greater prominence to rural areas and culture. The strategy targeted problems identified in the field of social welfare through the extension of health services and the construction of senior citizens' homes.

The strategy of the current 2007-2013 framework further increased the emphasis on R&D and knowledge transfer and innovation in line with the changes in EU policy and the importance given to these priority areas in the Lisbon Agenda as well as in the Competitiveness Strategy of Andalucía (ECA, 2007).

The strategy was amended a few years after the Andalucía ROP's approval, to include the financial instruments of JEREMIE and JESSICA in order to meet SMEs' need for funding through the provision of loans and guarantees and private equity. These were easy to obtain during the economic boom of the 2000s, but with the onset of the current financial crisis the situation changed dramatically, resulting in new needs that were met with the creation of the specified funds. While the JESSICA fund was intended for local development, the JEREMIE fund addressed innovative companies. These new instruments led to a more efficient design of the programme.

The needs for increased accessibility and internal connectivity remained throughout the programme periods, although the importance of transport infrastructure gradually diminished from the initial period to the present, in accordance with the narrowing gap between the Andalucía transport network and that of the rest of Spain and Europe. More specifically, the focus on articulating and unlocking the territory of Andalucía through the development of transport infrastructure was extremely high in the initial period, aiming to take advantage of the regional market opportunities of the new European single market. In view of developments, the programme strategies adapted to Andalucía's changing needs, whereby the lack of entrepreneurial culture and absorption capacity in the earlier periods impeded the development of R&D, making it unsuitable to focus on these in the earlier ERDF programme strategies. However, the shift in needs in later periods enabled the design of strategies emphasising entrepreneurial competitiveness and innovation. The observations above show the flexible nature of the strategies and their coherent evolution in their ability to respond to changing conditions in the region. However, an important drawback in the strategic approach was

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<sup>10</sup> Some action had already been undertaken in 1989 with the construction of the Andalucía Technology Park in Málaga.

not to sufficiently reinforce the industrial base of the region. The loss of weight in regional GVA and employment of the Andalusian industrial sector (except energy and construction) during the 2000s to a large extent narrowed the absorption capacity of the economy for innovation and competitiveness measures and prevented greater increase in employment rates.

Participants taking part in the online survey agreed that the programme strategies were in line with the needs in the separate programme periods.

Table 2 summarises the assessment of the needs and development goals for the eight axes considered in the present study.

**Table 2: Needs and imputed objectives for eight thematic axes**

Thematic axis	1989-1993		1994-1999		2000-2006		2007-2013	
	Needs	Imputed objectives	Needs	Imputed objectives	Needs	Imputed objectives	Needs	Imputed objectives
Enterprise	++	3	++	3	++	4	++	5
Structural adjustment	++	3	++	3	++	5	++	5
Innovation	++	3	++	3	++	5	++	5
Environmental sustainability	++	5	++	5	++	5	++	5
Labour market	++	3	++	4	++	3	++	3
Social cohesion	++	3	++	3	+	3	=	3
Spatial cohesion	++	4	++	4	+	4	=	3
Infrastructure	++	5	++	5	++	5	=	4

Needs Scale (evaluation of the region at the start of the period)

- ++ Very high need: the region is highly deprived on this axis
- + High need: the region is somewhat deprived on this axis
- = Average need: the region is around the national mean on this axis
- Low need: the region is above the national mean on this axis
- Very low need: the region is already a European frontrunner on this axis

Imputed Objectives

- 5 Very high effort, this axis is a central aspect of the regional development strategy
- 4 High effort, this axis is an important element in the regional development strategy
- 3 Average effort, this axis is included in the regional development strategy but not particularly important
- 2 Low effort: this axis is only marginally considered in the regional development strategy
- 1 No effort at all on this axis

## 4. EXPENDITURE ANALYSIS

### 4.1 Financial allocations

Over the last 25 years, European funds have contributed significantly to Andalusian regional development policy. The following table shows the amount of European structural aid<sup>11</sup> received by Andalucía in the different programme periods. The aid allocated to Andalucía through Structural Funds underwent substantial increases up to the current period (2007-2013), when the amount remained stable. The new Cohesion policy (Delors Package I, 1989-1993) multiplied Andalucía's aid by 2.6, and in 1994, following the European Union Treaty, these funds were doubled again by the Delors Package II. In the following 2000-2006 period, coinciding with the enlargement of the EU, the share of Structural Funds for Objective 1 regions was reinforced and Andalucía received a 58 percent increase in European Cohesion policy receipt.

The European Regional Development Fund (ERDF) and the Cohesion Fund (CF) have provided the largest allocation of structural aid to Andalucía. ERDF aid amounted to 58 percent and 64 percent respectively of Andalucía Structural Funds in each of the programme periods of 1986-1988 and 1989-1993. In 1994-1999, the ERDF, together with the newly created CF, contributed the maximum amount of 71 percent of Andalucía's European aid, the amount of which then decreased to 69 percent and 64 percent respectively in the subsequent periods of 2000-2006 and 2007-2013.

**Table 3: Funds in Andalucía (in constant € 2000)**

EUROPEAN STRUCTURAL AND COHESION FUNDS	1986-1988	%	1989-1993	%	1994-1999	%	2000-2006	%	2007-2013 (p)	%	TOTAL	%
ERDF ROPs	912.5	58	2,674.2	64	4,219.1	51	6,628.2	50	5,678.8	43	20,115.0	50
ERDF NOPs					497.0	6	1,616.5	12	1,351.1	10	3,464.8	9
COHESION FUND	-	-	-	-	1,112.7	13	876.3	7	1,300.5	10	3,289.7	8
Subtotal ERDF CSF + CF	912.5	58	2,674.2	64	5,828.8	71	9,120.9	69	8,330.5	64	26,869.4	67
Community Initiatives	106.5	7	179.0	4	93.3	1	128.0	1	108.0	1	614.8	2
ESF	427.1	27	375.8	9	959.6	12	913.1	7	2,720.2	21	5,396.4	13
EAGGF / EARDF	93.2	6	841.2	20	1,214.0	15	1,052.1	8	1,768.8	14	4,969.8	12
FIFG / EFF	36.0	2	139.3	3	170.4	2	201.8	2	166.1	1	713.8	2
ESF/EAGGF/FIFGF NOPs	-	-	-	-	-	-	1,717.3	13	-	-	1,717.5	4
<b>TOTAL</b>	<b>1,575.3</b>	<b>100</b>	<b>4,209.4</b>	<b>100</b>	<b>8,266.1</b>	<b>100</b>	<b>13,133.3</b>	<b>100</b>	<b>13,093.5</b>	<b>100</b>	<b>40,281.7</b>	<b>100</b>

Source: ERDF expenditure table and complementary information from DG for Planning and Community Funds of Andalucía.

ERDF CSF, ERDF programmes in the Community Support Framework (CSF). ESF, European Social Fund. EAGGF / EARDF, European Agriculture Guarantee and Guidance (Guidance Section) / European Agriculture Rural Development Fund. FIFG / EFF, Financial Instrument for Fisheries Guidance / European Fisheries Fund

(p) Initial allocations. CF amount was computed from the indicative project list in the initial version of the ERDF Cohesion Fund OP

The investments carried out through ERDF programmes in the separate programme periods from 1989 to 2007 are presented in the next section. These expenditures are related to ERDF aid

<sup>11</sup> It is difficult to obtain comparable expenditure data for the whole set of Structural Funds in Andalucía in the first programme period. Consequently, the overall Structural Funds data are provided in terms of aid.

according to co-financing rates, that is, to the proportion of the expenditure or investment that must be contributed by domestic players. These rates are determined separately for the different types of priorities, but overall they have been reduced from a range of 40-50 percent in the first period to 30-40 percent in 1994-1999 and 25-35 percent in 2000-06.

Table 4 shows initial financial allocations. Information on initial allocations in most of the CSF programmes is not available for the first programming period of 1989-1993. Moreover, as explained in Section 1 of Chapter 3, this period was an exception in Andalucía, as its numerous ERDF programmes played a limited role in conducting ERDF expenditure. Consequently, expenditure within the 1989-1993 CSF is not broken down according to the many Regional Operational Programmes created in Andalucía at that time. It merely provides a point of reference and consequently, 1989-1993 figures are not included in total 1994-2013 ROP initial allocations.

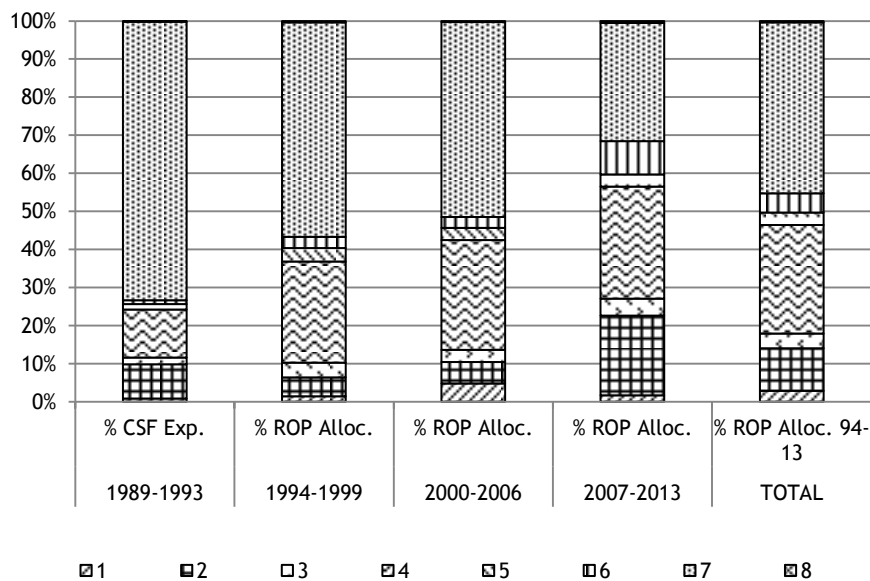
**Table 4: Andalucía ROP 1989-2013, Initial financial allocations**

Priority	1989-1993		1994-1999		2000-2006		2007-2013		TOTAL	
	CSF Expend.	% CSF Expend.	ROP Alloc.	% ROP Alloc.	ROP Alloc.	% ROP Alloc.	ROP Alloc.	% ROP Alloc.	ROP Alloc. 94-13	% ROP Alloc. 94-13
1	40.29	0.8%	73.86	1.4%	408.03	4.8%	138.20	1.7%	620.09	2.8%
2	454.56	9.0%	255.53	4.9%	474.91	5.6%	1,711.39	20.9%	2,441.83	11.2%
3	88.18	1.8%	200.90	3.9%	273.80	3.2%	363.40	4.4%	838.10	3.8%
4	636.42	12.6%	1,370.61	26.5%	2,449.40	28.9%	2,404.98	29.4%	6,224.99	28.5%
5	70.40	1.4%	185.92	3.6%	268.84	3.2%	264.82	3.2%	719.58	3.3%
6	53.60	1.1%	150.32	2.9%	239.62	2.8%	711.40	8.7%	1,101.34	5.0%
7	3,682.40	73.1%	2,911.92	56.4%	4,351.43	51.3%	2,535.41	31.0%	9,798.75	44.9%
8	9.34	0.2%	17.82	0.3%	23.10	0.3%	46.34	0.6%	87.26	0.4%
<b>TOTAL</b>	<b>5,035.2</b>	<b>100.0%</b>	<b>5,166.9</b>	<b>100.0%</b>	<b>8,489.1</b>	<b>100.0%</b>	<b>8,175.9</b>	<b>100.0%</b>	<b>21,831.9</b>	<b>100.0%</b>

1.- Enterprise; 2.- Structural Adjustment; 3.- Innovation; 4.- Environmental sustainability; 5.- Labour market; 6.- Social Cohesion; 7.- Infrastructure and Spatial distribution of economic activity; 8.- Unspecified



**Graph 5: Distribution of the initial financial allocations of ERDF Andalucía ROP**



Source: Own elaboration based on regional operational programmes

As seen in the table below, the main thematic axis throughout the whole analysed period is regional infrastructure. Nevertheless, its relative importance has been declining with every programming period, from 56.4 percent in 1994-1999 to 31 percent in 2007-2013. The second most important thematic axis is Environmental Sustainability, the relative weight of which has increased in every programming period, growing from 26.5 percent in 1994-1999 to 29.4 percent in 2007-2013. The next most important theme is Structural Adjustment, with a growth in relative weight growing from 4.9 percent in 1994-1999 to 20.9 percent in 2007-2013. This strong growth is due to the fact that the measure of Regional Incentives was part of the NOP up until the current period of 2007-2013, when it was included in the ROP of Andalucía. For defining the fourth thematic axis by importance, joining the priorities Enterprise and Innovation has been considered, as they are impossible to separate in some periods. Altogether, this theme presents a strong growth, from 5.3 percent in 1994-1999 to 8 percent in 2000-2006. In the 2007-2013 period, the amount of Enterprise and Innovation decreased to 6.1 percent.

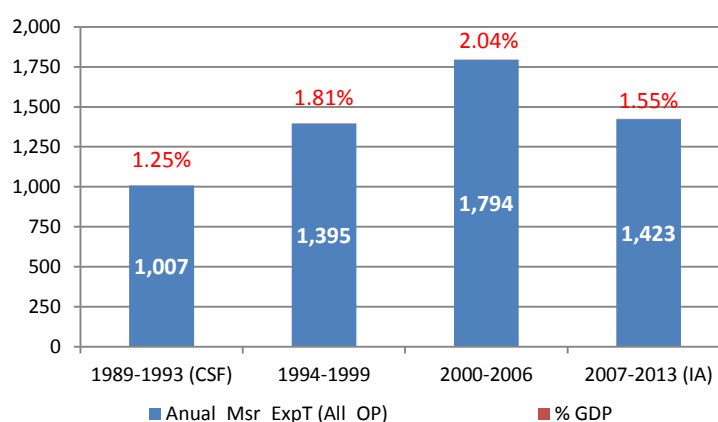
## 4.2 Expenditure compared to allocations

An initial estimation of the effect of the ERDF on the Andulacian economy can be obtained by examining the proportion of GDP mobilised through the investments of ERDF programmes in Andalucía. To obtain this information, total expenditure through ERDF investments in the separate CSFs of Andalucía (shown in Table 3) were annualised to take the different length of programme periods into account. The results are presented in Graph 6. ERDF annualised investments amounted to €1,007 billion per year in the 1989-1993 period and increased by 39 percent in the 1994-1999 period, rising to €1,395 billion. Finally, following another increase to €1.794 billion in 2000-06, average annualised investment was reduced to €1,423 billion (21 percent) in the current 2007-2013 period according to Andalucía's initial ERDF and CF allocations. ERDF investments mobilised important proportions of Andalusian GDP, ranging from 1.25 percent in the first period of 1984-1989, to a forecast of 1.55 percent of GDP<sup>12</sup> for the current 2000-2013 period. Their evolution

<sup>12</sup> The regional GDP for the years 2009-2013 is approximated by the percentage change in GDP Eurostat forecasts.

follows a similar pattern to that of the annual average investment, increasing to 1.81 percent and 2.04 percent respectively in the 1994-1999 and 2000-2006 periods.

**Graph 6: Average annual expenditure of ERDF (million euros in 2000)**



Source: Own elaboration based on programme priorities and periods.

Table 5 shows the distribution of expenditure across different Priority themes for all ERDF programmes in Andalucía throughout the various Community Support Frameworks (CSFs) or programme periods (at present NSRF). Initial allocations and expenditure are classified by themes related to the objectives and main needs addressed by ERDF programmes. These categories of spending, like those of objectives/requirements, have been developed in order to enable a more reliable comparison between programmes and programme periods. Annex II includes an expenditure table based on the Priorities, as presented in programme documents, showing findings similar to those presented here.

Transport infrastructure and industrial land have been grouped together with actions oriented towards the spatial rebalancing of economic activities, as the orientation towards ‘unlocking’ and territorial connectivity of infrastructure investments makes it difficult to separate these two main themes. In any case, most of the measures in infrastructure and spatial equilibrium themes correspond to transport infrastructure spending.

**Table 5: Funds by thematic axis in Andalucía (in million Euros in 2000 and in percentages)**

Targ.	1989-1993	1994-1999			2000-2006			2007-2013			
	CSF Total Exp.	ROP Alloc.	ROP Exp.	CSF Total Exp.	ROP Alloc.	ROP Exp.	CSF Total Exp.	ROP Alloc.	ROP Exp.	CSF Total Alloc.	CSF Total Exp.
1	40.3	73.9	138.7	150.2	408.0	466.0	515.6	138.2	24.8	138.2	24.8
2	454.6	255.5	702.7	950.7	474.9	798.8	1,445.4	1,711.4	459.8	1,711.4	459.8
3	88.2	200.9	142.6	142.6	273.8	308.2	851.5	363.4	69.0	2,148.8	69.0
4	636.4	1,370.6	2,158.9	3,093.5	2,449.4	2,395.0	3,043.1	2,405.0	524.1	2,456.4	532.8
5	70.4	185.9	298.8	301.3	268.8	259.3	260.6	264.8	73.4	264.8	73.4
6	53.6	150.3	166.2	167.8	239.6	241.4	372.6	711.4	166.1	711.4	166.1
7	3,682.4	2,911.9	2,960.8	3,536.7	4,351.4	5,357.2	6,042.5	2,535.4	1,359.4	4,109.6	1,545.0
8	9.3	17.8	26.6	27.6	23.1	25.6	27.1	46.3	13.8	46.3	13.8
Total	5,035.2	5,166.9	6,595.3	8,370.3	8,489.1	9,851.5	12,558.6	8,175.9	2,690.4	11,587.0	2,884.7

**Table 6: Funds by thematic axis in Andalucía (in million Euros in 2000 and in percentages) (Continued)**

Targ.	1989-1993	1994-1999			2000-2006			2007-2013			
	CSF Total Exp.	ROP Alloc.	ROP Exp.	CSF Total Exp.	ROP Alloc.	ROP Exp.	CSF Total Exp.	ROP Alloc.	ROP Exp.	CSF Total Alloc.	CSF Total Exp.
1	0.8%	1.4%	2.1%	1.8%	4.8%	4.7%	4.1%	1.7%	0.9%	1.2%	0.9%
2	9.0%	4.9%	10.7%	11.4%	5.6%	8.1%	11.5%	20.9%	17.1%	14.8%	15.9%
3	1.8%	3.9%	2.2%	1.7%	3.2%	3.1%	6.8%	4.4%	2.6%	18.5%	2.4%
4	12.6%	26.5%	32.7%	37.0%	28.9%	24.3%	24.2%	29.4%	19.5%	21.2%	18.5%
5	1.4%	3.6%	4.5%	3.6%	3.2%	2.6%	2.1%	3.2%	2.7%	2.3%	2.5%
6	1.1%	2.9%	2.5%	2.0%	2.8%	2.5%	3.0%	8.7%	6.2%	6.1%	5.8%
7	73.1%	56.4%	44.9%	42.3%	51.3%	54.4%	48.1%	31.0%	50.5%	35.5%	53.6%
8	0.2%	0.3%	0.4%	0.3%	0.3%	0.3%	0.2%	0.6%	0.5%	0.4%	0.5%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Source: Own elaboration drawn from expenditure database.

Key: 1. Enterprise, 2. Structural Adjustment, 3. Innovation, 4. Environmental Sustainability, 5. Labour Market, 6. Social Cohesion, 7. Infrastructure and Spatial Distribution of Economic Activity, 8. Unspecified

The data in the table refers to the value (in millions of Euros at constant value in 2000) of ERDF programme investments including national co-financing for initial allocations and expenditure within the ROP, as well as CSF total expenditure in the separate programme periods of Andalucía, with CSF total allocation amounts given for the current 2007-2013 period.<sup>13</sup> As explained in Chapter 3, ERDF programmes in CSFs consist of the largest, the Andalucía Regional Operational Programme, and other smaller multiregional/National programmes acting in the region (NOPs).<sup>14</sup>

In the current 2007-2013 period, the distribution of expenditure by priority themes is not yet significant due to differences in the maturity rates of measures, but initial allocations capture the shift towards innovation and competitiveness in Andalucía's development strategy.

Andalucía's financial absorption capacity has been high throughout all programme periods and total expenditure exceeded the initial allocations in the ROP. In the first programme periods, allocations were defined at constant value ECU (European Currency Unit), and consequently the value of initial allocations was increased as a result of the measures taken to offset the effects of inflation and exchange rates on the ECU's real value. For this reason, actual expenditure exceeded initial allocations by 29 percent in the 1994-1999 period. In 2000-2006, programme documents already defined initial allocations in the current Euros. However, the newly created performance reserve was not included in initial allocations, and actual expenditure exceeded the initial allocations by 16 percent at the end of the period.

It is important to consider the relationship between initial and actual allocations in Euros in order to accurately assess the fulfilment of the commitments defined in the ROPs. Information regarding

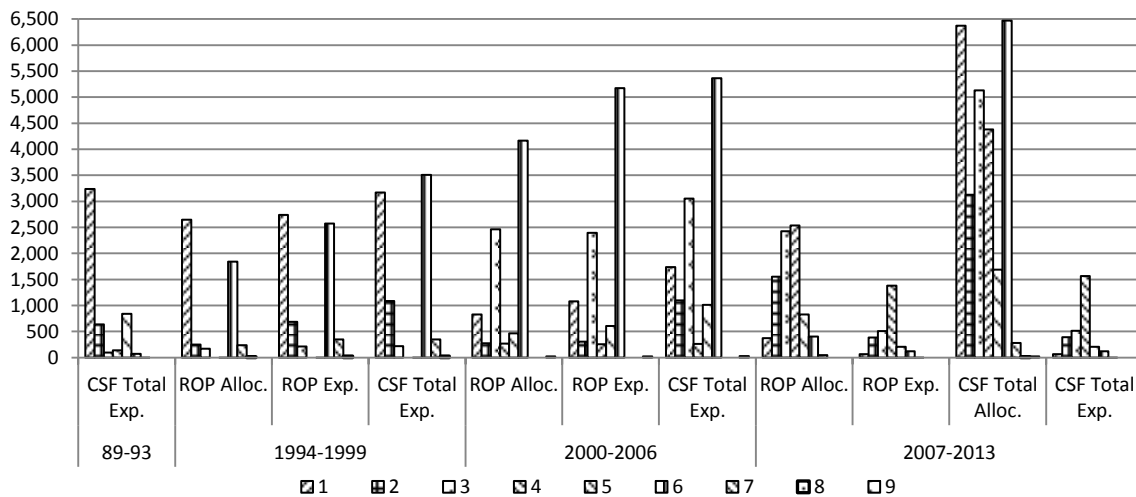
<sup>13</sup> In the first programme periods, information regarding initial allocations to Andalucía in NOPs is not available. Moreover, in 2000-2006, the Andalucía's CSF merely includes a reference to the total amount allocated to NOPs for Andalucía including the ERDF, ESF and EAGGF.

<sup>14</sup> These programmes are reported in the first section of Chapter 3 above. The expenditure in Andalucía by the 1994-99 NOP for Scientific Infrastructure is not available. The expenditure on regional incentives in Andalucía in the initial periods has been estimated through information provided in the annual reports of the SDG for Regional Incentives, Ministry of Finance.

the implementation of the regional development strategy cannot be deduced by merely considering the changes in the share of actual expenditure by Priorities in the separate ROPs. This is due to the inclusion of ROPs within the broader framework of the CSF.

Graph 7 illustrates the distribution by Priorities of initial and actual expenditure allocations in the ROP and in each of the CSFs of Andalucía between 1989 and 2011. Implemented expenditure tends to be higher than initial allocations for most Priorities. With the exception of expenditure for innovation in the 1994-1999 period, which reached merely 71 percent of initial allocations, the expenditure within Priorities equalled or, more frequently, surpassed their financial allocations.<sup>15</sup>

**Graph 7: ERDF expenditure by thematic axis (million Euros in 2000)**



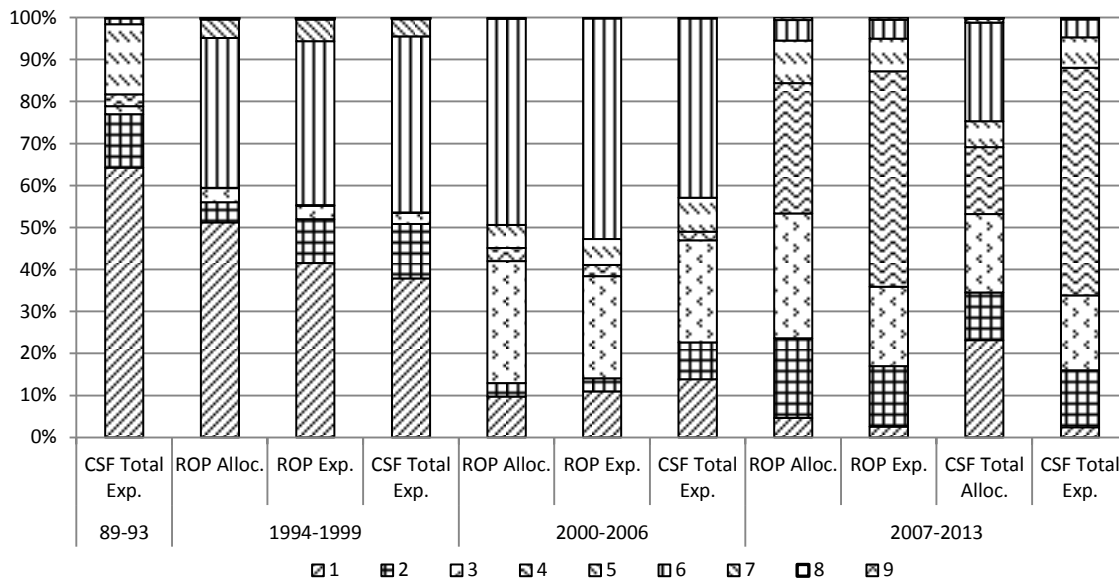
Source: Own elaboration drawn from expenditure database.

Key: 1. Enterprise, 2. Structural Adjustment, 3. Innovation, 4. Environmental Sustainability, 5. Labour Market, 6. Social Cohesion, 7. Infrastructure and Spatial Distribution of Economic Activity, 8. Unspecified.

Graph 8 presents the shares of initial and actual allocations in the Andalucía ROPs and in the actual expenditure of the whole CSF.

<sup>15</sup> Expenditure in some measures may be also greater than the initial allocations defined in the programme, because the financial gap is filled with more national funding. Closing adjustments allow some flexibility amongst different measures and bring claims of ERDF aid into line with the total amount of aid allocated.

**Graph 8: ERDF expenditure by thematic axis (percentage)**



Source: Own elaboration drawn from expenditure database.

Key: 1. Enterprise, 2. Structural Adjustment, 3. Innovation, 4. Environmental Sustainability, 5. Labour Market, 6. Social Cohesion, 7. Infrastructure and Spatial Distribution of Economic Activity, 8. Unspecified.

Changes in the percentage structure of allocated and actual expenditure in the ROP must be interpreted bearing in mind that, as a rule, actual expenditure has been in line with allocated amounts. In certain Priorities, the level of spending was in accordance with the allocated amount, but this became a smaller proportion of the total due to greater expenditure elsewhere. This was the case with regional infrastructure (mainly roads) in the 1994-1999 period, as the bulk of the increase in the ROP funding was allocated to environmental infrastructure (water supply and sanitation), structural adjustment (aid for the creation, expansion and modernisation of enterprises) and education and health infrastructure. In the 2000-2006 period, the amount of funding reserved for well-performing programmes was awarded in the second part of the period, and it was allocated to transport infrastructure and structural adjustment measures (aid for SME investments and for investments in cultural heritage linked to the promotion of tourism). However, to a great extent these considerations lack significance, as the true ERDF strategy for the regional development of Andalucía is embedded in the structure of the actual expenditure of all ERDF programmes within the CSF. Unfortunately, initial allocations by Priorities are only available for the current programme period, as only global indications regarding the total amount of funding for Andalucía in NOPs were given in previous periods.

The data shows the fundamental characteristics of the strategic approaches for the different programme periods discussed above. In the earlier programmes (for the modernisation of Andalucía), the most important areas of investment were transport infrastructure and environment. However, significant resources were also intended to address structural adjustment and educational infrastructure needs (the ERDF eligible item in the field of human resources). In recent programme periods, the development strategy of Andalucía is more diversified with greater emphasis placed on the competitiveness of the production system: the intangible elements of RDI, enterprise policy and structural adjustment. It is also worth noting that ERDF environmental investment is increasingly oriented towards the conservation and protection of nature and

biodiversity (although reforestation was always present since the first CSF with its own OP). It is too early to assess spending in the current period, but initial allocations indicate a shift towards a competitiveness strategy in accordance with the guidelines of the Lisbon Strategy, the National Reform Plan of Spain, and the competitiveness strategy of Andalucía (Junta de Andalucía, 2007).

## 5. ACHIEVEMENTS ANALYSIS

### 5.1 Reported & actual achievements

This chapter discusses the ERDF achievements in different programme periods and major themes of the objectives/needs. At the same time, the complementarities with other EU-funded programs and other national/regional policies are appreciated.

#### 5.1.1 Achievements for programme periods

The assessment of reported achievements is mainly based on data provided by the final programme implementation reports. Additional data was obtained from planning documents, other reports and statistical data. Indicators systems were designed by central government managing authorities for each separate programme period and have evolved over time. An exception was the first programme period of 1989-1993, where no quantitative objectives were defined, as it was the first attempt at the new planning instruments in the newly-created European Social and Economic Cohesion policy aimed at reducing regional disparities in development levels. However, a detailed report on ERDF achievements was available.

For the purposes of this analysis, a reduced set of homogeneous indicators suitable for aggregation was selected for each programme period.

Despite the progress experienced in target and indicator systems, they have had a limited role in programme management and have mainly been used to account for output to members of the monitoring committees. The problem lies in the difficulty of defining accurate expected indicators (objectives or targets) due to the limited information available with managing authorities and beneficiaries that were unused to setting multiyear forecast targets. Moreover, the wide scope of programmes encompassing many different priority areas made accurate forecasting difficult. This was a common problem shared with Objective 1 regions across Spain in the 1994-1999 period, when the first attempts at forecasting were made.<sup>16</sup> In addition, the deep economic crisis of 1993 coincided with the timing of designing the plans and affected the economic context of projections. With the increasing information and feedback obtained from early implementation measures, predictions were periodically amended and revised to better fit the changing situation, facilitating the definition of targets in the ensuing years.

The final reports of the various forms of intervention provide valuable and reliable qualitative and quantitative information about numerous indicators upon completion of the projects.

The formats and concepts of the indicators vary across programmes, and although it is possible to establish some general comparisons, it is necessary to analyse the achievements in the context of programme periods. The following analysis of the separate programme periods mainly focuses on ROPs due to their wide scope across regional needs, whereas NOPs focus on specific needs.

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<sup>16</sup> This problem was resolved by the decision adopted by the monitoring committees to periodically revise programme targets. The situation for the whole of Spain was described in this manner: 'Only some of the programmes established target output information that enables a comparison between actual outputs achieved and targets. Even where targets were established, significant reprogramming decisions have meant that in many cases the value of these targets had diminished by the end of the programme' (CEET, 2003: 58).

In the 1994-1999 period, the first set of indicators was established. Table 6 shows the targets set in the initial programming document, the amended targets defined in later documents, and the achievements reported in the final implementation report.

**Table 7: ROP Andalucía 1994-99**

OP Indicators	Unit	Initial targets	Amended targets	Reported Achievements
<b>Improving competitiveness and development of the productive structure</b>				
Jobs created and retained (industry and services)	No.	n/a	21,059	19,527
Jobs created (industry and services)	No.	n/a	14,091	7,788
Jobs retained (industry and services)	No.	n/a	6,968	11,739
Beneficiary companies (industry and services incl. Tourism)	No.	3,608	4,405	4,893
Induced private investment (million Euros 2000)	m€	1,584.9	722.1	741.1
<b>R&amp;D and Information Society</b>				
Beneficiaries in RTDI transfer	No.	n/a	18	19
Projects financed on R&D in companies	No.	n/a	105	0
<b>Environment</b>				
Supply networks new and improved	km	n/a	943	1,369
Restoration of natural surface area	Has	n/a	1,594	1,594
<b>Networks for Transport and Energy</b>				
Motorways, expressways and highways	km	1,072	1,193	1,418
Rail route restored / renovated	km	404	346	390
<b>Local and Urban Development</b>				
Improved tourist centres	No.	n/a	9	189
Population benefiting from improved healthcare	Hab.	n/a	681,820	767,700
Hospital beds	No.	n/a	92	206
<b>Employment Indicators on Environment, Networks for Transport and Energy and Local and Urban Development</b>				
Jobs created on infrastructure construction phase	No.	n/a	53,080	43,077
Jobs created on infrastructure maintenance phase	No.	n/a	8,353	9,308
Jobs created (maintenance and construction phase)	No.	n/a	61,433	52,385

As it quickly became apparent that the initial targets were no longer relevant due to forecasting difficulties, as described above, these targets were significantly revised in the re-programming process early on in the programme period. The dramatic reduction in the target number of company beneficiaries could be in part attributable to the consequences of the 1993 economic crisis. Moreover, it was difficult to forecast targets eight years prior to the actual completion of the programme. This also applies to other revised targets such as the construction and restoration of transport networks. Hence, the reported achievements in these areas differ significantly to that of the initial targets.

The achievements reported by the Managing Authorities in the final programme report were collected from reports on realised projects and consist of reliable information regarding the outputs supported by the budgetary controls of regional and central governments.



In the 2000-2006 period, the performance objectives at the programme level were in line with the region's diversification strategy, which consequently placed a new emphasis on the second modernisation of Andalucía (the production system) by promoting company policy, R&D and innovation and technology transfer. In the same period, targets and indicators were further developed and new ones created. The indicator of total created employment shown in Table 7 (365,944 jobs) is linked to measures in enterprise and structural adjustment. However, much of this figure corresponds to maintained employment (320,000 jobs, representing 11.4 percent of the employed population in 2000-2006 period), which is a dubious indicator because of uncertainty regarding the proportion of maintained jobs directly attributable to ERDF aid. Meanwhile, the 49,187 permanent jobs created in the period (17.7 percent more than scheduled) represent 1.8 percent of the employed population of Andalucía in 2000-2006 period. This figure is reliable, given that beneficiary companies were usually asked to present contracts proving new job creation and that the figure corresponds to the high economic growth and employment creation of Andalucía in this period. The creation of an additional 140,580 jobs linked to the labour required for the construction of the transport network was reported as estimated by the construction engineers. However, the permanent nature of these jobs is questionable, as they depend on the activity level of the construction sector.

The induced investment was concentrated on business measures and structural adjustment. Its value increased to €10.7 billion, representing a significant portion, 6.8 percent, of Andalucía private fixed capital formation at that time. This indicator was based on the investment requirements in regional incentives and it has credibility, though some extent of double-counting might be possible in instances of companies applying for more than one aid.

In R&D and Information society, the number of individual R&D projects financed is 1,332, whereby the number of beneficiary companies may be lower as it is possible for companies to submit applications for the financing of more than one project. Initial targets were increased from 524 to 1234 planned projects financed due to inaccurate forecasts, largely attributable to the absence of precedents for these measures. The target for the number of people benefiting from R&D transfer was decreased from 4,420 to 173 with the realised achievements reaching 196 people. This reflects the unexpected difficulties encountered in encouraging the transfer of knowledge between members of different organisations (companies and research and technology centres). An additional feature of R&D projects for enterprises in Andalucía is that they do not generate employment in the short term, nor do they involve many participants.

**Table 8: Indicators of the Regional OP of Andalucía 2000-2006**

	Unit	Initial Targets	Amended Targets	Reported Achievements
<b><i>Improving competitiveness and development of the productive structure</i></b>				
Jobs created and retained (industry and services)	No.	229,100	321,201	365,944
Jobs created (industry and services)	No.	n/a	41,797	49,187
Jobs retained (industry and services)	No.	n/a	279,404	316,757
Beneficiary companies (industry and services incl. Tourism)	No.	35,800	19,181	22,844
Investment induced (industry and services)	MEuros	4.880	8.166	10.777
<b><i>R&amp;D and Information Society</i></b>				
People benefiting from RTDI transfer	No.	4,420	173	196
Projects financed on R & D in companies	No.	524	1,234	1,332
<b><i>Environment</i></b>				
Supply networks new and improved	km	337	1,623	1,809
Restoration of natural surface area	Has	88,500	140,000	136,066
<b><i>Networks for Transport and Energy</i></b>				
New or improved highway	km	577	500	550
New or improved road	km	3,345	1,183	1,293
Railway built or improved	km	206	155	182
<b><i>Local and Urban Development</i></b>				
Improved tourist centres	No.	134	1,320	1,408
Population benefiting from improved healthcare	Hab.	343,000	455,000	465,138
Hospitals built or renovated	No.	12	27	27
Health centres built or renovated	No.	10	15	16
<b><i>Employment Indicators on Environment, Networks for Transport and Energy and Local and Urban Development</i></b>				
Jobs created on infrastructure construction phase	No.	n/a	169,516	132,400
Jobs created on infrastructure maintenance phase	No.	n/a	7,677	8,180
Jobs created	No.	n/a	177,193	140,580

The table above illustrates forecasting problems similar to those of the previous period.

Transport infrastructure, although with a lower relative weight, remained a major priority in this period. In line with the initial estimate and programme objectives, 550 kilometres of highways were newly built or improved and 1,200 kilometres of roads were improved, of which just 158 kilometres were newly built. Investments in social welfare remained an important element, with up to 465,000 local people benefiting from the renovation of 27 hospitals and the construction of 16 health centres.

**Table 9: Indicators of the Regional OP of Andalucía 2007-13**

	Unit	Target 2010	Target 2013	Reported Achiev. 2011	Reported 2011 / Target 2013 (%)
<b>Enterprises</b>					
Jobs created gross	Nº	38,016	66,974	19,727	29.45%
Induced investment	m€	5,666	10,924	1,593	14.58%
Number of start-ups supported	Nº	2,627	5,539	568	10.25%
Number of beneficiary companies	Nº	28,367	55,302	14,677	26.54%
<b>Innovation</b>					
RTDI Projects and Business Collaboration Research Centres	Nº	439	967	419	52.30%
Jobs associated / Project participants	Nº	2,690	5,668	5,193	91.62%
No. of RTDI benefited centres	Nº	109	165	84	50.91%
No. of new RTDI centres	Nº	4	11	0	0.00%
<b>Environment</b>					
Supply networks created or improved	km	281	2,112	298	19.64%
Additional population served (water supply)	Nº	4,271,009	10,971,564	1,675,488	15.3%
Sanitation networks created or improved	km	99	360	92	21.80%
Additional population served (water treatment)	Nº	3,824,179	10,631,232	2,575,026	24.2%
Reforested area or improved	Has	42,567	186,867	13,908	24.49%
Actions inside/outside Natura 2000 areas	Nº	20	40	31	88.69%
<b>Transport infrastructure</b>					
New roads and highways	km	1,693	2,440	1,563	55.92%
New railway included in TEN-T	km	118	242	4	1.81%
Constructed railway (AVE)	km	88	128	6	4.69%
<b>Social infrastructure</b>					
Established and/or reformed social centres	Nº	259	331	260	78.55%
Number of students beneficiaries Educational Inf.	Nº	76,699	89,484	42,610	47.62%
New school places	Nº	6,179	10,813	16,822	155.57%
Created and/or reformed social centres	Nº	79	139	140	100.72%
Spaces created in dependent care centres	Nº	803	1,460	2,003	137.19%

The 2007-2013 programme was improved with the setting of additional targets in several Priority areas and an increased efficiency in their forecasting, enabled by experience acquired in the previous periods. Initial targets have been specified for 2013, with the novelty in this period of setting medium-term targets for 2010 with the intention of increasing the ongoing monitoring system. Unfortunately, both the programme and the information system used for the entry of reported achievements were delayed, which resulted in a low implementation rate of the first set of complete official achievements reported in 2010. As a result, 2011 achievements are used for this analysis.<sup>17</sup>

In this programme period, the economic crisis has had a severe impact on the realisation of achievements, whereby some Priority areas have experienced a significantly larger time lag than

<sup>17</sup> The system of management information on indicators took almost three years to become operational and was not effective until 2011. Currently, the system works well and provides detailed and accurate information, but unfortunately, for management purposes, it comes at a time when activity has been reduced as a consequence of the severity of the economic crisis in Spain and Andalucía.

others. For example, the enterprises Priority has been affected by the credit crunch with achievements of 2013 targets in the range of 10-29 percent in 2011. Whilst the environment and railway infrastructure projects are encountering considerable time lags due to their complexity and long maturity terms, projects in the fields of R&D and social infrastructure have achieved a large proportion of their set targets.

The indicators for the 17 years between 1994 and 2010 are illustrated in the following table.

**Table 10: Reported achievements 1994-2011**

Targets		Indicators	1994-1999	2000-06	2007-2011
A0 + B0	Enterprise and Structural adjustment (sectorial development)	Jobs created	7,688	44,716	13,387
		Jobs maintained	11,739	313,872	n/a
		Beneficiary companies	4,742	10,854	13,542
		Companies created	151	1,805	n/a
		Induced investment (million euro)	1,689	10,011	1,213
		Rehabilitated buildings	215	24,450	n/a
		Plans for traditional tour destinations	n/a	161	n/a
C0	Innovation	Jobs created	100	455	6,340
		Jobs maintained	n/a	877	n/a
		Beneficiary companies	n/a	n/a	1,110
		Beneficiary research groups	1,850	2,109	n/a
		Subsidized research teams	10,806	n/a	n/a
		Centres of RTDI benefit	n/a	n/a	84
		Centres of RTDI created	n/a	n/a	n/a
		Induced investment (mPtas 94-99, m€ 00-13)	n/a	n/a	130
		Induced investment (m€ in 2000)	n/a	n/a	108

Between 2000 and 2006, 1,805 SMEs were created (151 in the previous period), representing 1.4 percent of the companies created in Andalucía in this period (127,000). As for the number of beneficiary companies, indicators provide figures of 4,700 and 10,800 in 1994-1999 and 2000-2006, respectively, representing 3 percent and 4.5 percent of the total number of SMEs in Andalucía in 1999 and 2006. Furthermore, induced investment in structural adjustment and enterprise increased drastically from €1,689 million in 1994-99 to €10,002 million in 2000-2006, resulting in an increase of support given to private fixed capital formation from 2.1 percent in 1994-1999 to 6.3 percent in 2000-2006. These percentages seem reasonable, but have probably been affected slightly by double counting. The significant increase of achievements is apparent and reflects the change in the strategic emphasis throughout the programming periods.

The ERDF contribution to the creation of permanent jobs was overwhelmingly concentrated in measures relating to business and structural adjustment, which generated over 85 percent of the gross jobs created which were linked to positions with some degree of permanence. Innovation measures led to significantly lower job creation. Thus, in the period of 2000-2006, generated employment directly associated with innovation was merely 455, compared to almost 44,716 jobs created in the other two measures (representing a 0.7 percent of employed population). This makes sense in the short term due to the time lag of the positive effects stemming from innovations. Moreover, most of the innovation projects are in the field of RTDI where enterprises and research teams are not required to hire additional human resources and tend to outsource many tasks.

Naturally the situation must change in the medium and long term as the creation of stable and high skilled jobs depends on companies' competitiveness sustained by innovation. The current period 2007-13 has brought about significant changes in that the number of participants in RDTI projects has increased to 5,193 representing 91.6 percent achievement rate of target set for 2013.

In any case, the employment figures directly linked to European aid granted to companies are credible when considering the employed population of 2.5 million in Andalucía in 2000. Employment directly linked to ERDF in 1994-2006 aid amounts to 1.8 percent of the employed population. Most job creation in the areas of enterprise, structural adjustment and innovation was concentrated in 2000-2006 (44,716). This figure is significant, representing 1.6 percent of employed population (the figure for 1994-1999 would be 0.4 percent), although its value is tempered by the fact that the figure for employment is gross.

The indicator for maintained jobs amounted to 327,000 (around 12,000 in 1994-1999 and 315,000 in 2000-2006), representing 11.9 percent of the workforce of Andalucía in 2000 (0.5 percent in 1994-1999 and 11.2 percent in 2000-06). The 2000-2006 figures seem clearly overestimated, despite it having been a period of strong employment growth. Estimates may have been optimistic as the maintenance of these was not necessarily linked to the ERDF measures and that several grants could have been double counted.

### 5.1.2 Analysis by theme

#### Infrastructure

The regional and multiregional ERDF programmes reviewed in this study, invested €14,806.6 million in regional infrastructure endowment until the end of 2011, equivalent to approximately 51 percent of the overall expenditure across the study period. This amount fluctuated over the periods, from 73 percent of expenditure in 1898-93 to 42 percent of expenditure in 1994-99, to 48 and 36 percent respectively in the 2000-06 and 2007-2013 programmes (spending is still underway for the current programme, the figures correspond to the CSF's initial allocation).

Map 6: Articulation of the Andalusian territory



Source: PDIA 1997-2007.

In the area of transport infrastructure, efforts were aimed at improving the accessibility and connectivity of the region. Two main challenges were identified, namely the development of the longitudinal axis for east-west connections and the north-south axis for accessibility.

For highways on the east-west longitudinal axes, projects were focused on the following stretches of the network:

- In 1989-94, important sections of the Mediterranean highway, ‘Costa del Sol’ were built, connecting Algeciras to Málaga (139 kilometres) and developing the stretch of highway by Almería. In 1994-1999, the highway was completed with the construction of the section connecting Málaga to Almería (209 kilometres).
- The construction of the A92, Seville-Granada-Baza (395 kilometres), in the middle of the region in 1989-1993, which was subsequently:
  - Extended in 1994-99 with the southern stretch to Almería.
  - Connected to the Trans-European Transport Network in 1994-1999 with the Seville-Huelva highway leading to Portugal in the west with a total of 99 kilometres of new highway. The final section linking Huelva with Portugal was completed in the 2000-2006 period.
  - Further improved in the 2000-2006 period, with additional highways of 446.44 kilometres completed and 103.40 kilometres improved.
- On the construction of the Jerez-Los Barrios highway (145 kilometres), another connection of great importance was made, that of the Algeciras Harbour to Jerez, the highway to Seville in the north, thereby connecting it to the entire north, west and central highway network. This was started in 1989-1994 and completed in the following period, whereby the increase in access of the Algeciras harbour was essential as it is one of the main ports in the Mediterranean but had severely hindered connections to trade routes. The proposed route of highway crossed a place of unique environmental value, the natural park of ‘Los Alcornocales’, a situation that was resolved in an exemplary manner with extensive environmental integration measures implemented in the successive periods following the start of construction.

In 1989-1993, the Madrid-Seville highway (532 kilometres), linking the core of the region, the Guadalquivir valley (Cádiz-Seville-Córdoba) to Madrid through the mountainous areas in the north of Andalucía was completed with the construction of new sections, most notably that of Córdoba to the north and the connection with Seville airport. The realisation of these projects involved an investment of up to €226.2 million (€113.1 million ERDF funds). In 1994-1999, the access from Cádiz to Seville highway (previously constructed without ERDF funding) leading to Madrid was constructed. In 2007-2013, further actions included the construction of the A32 Linares-Úbeda section leading to Albacete (237 kilometres) with an eligible investment of €105.7 million.

On the north-south axis:

- In the 1994-99 period, the Bailén-Granada-Motril highway was constructed, connecting the Mediterranean highway to the A92 in Granada and then to the central access to Madrid. In total, 98.4 kilometres of highway were constructed, reducing travel time by 49 percent and enabling access to inland Andalucía and other parts in Spain. Moreover, the Granada-Motril stretch was completed in 2000-2006. This project is discussed in further detail in Annex 8.3 due to its interesting nature.
- In 2000-2006, the Córdoba highway was connected to the A92 central axis, establishing a connection to Málaga in the south.

- In 2000-2006, the northern link in the Andalucía European route, E-803 (462 kilometres), between Seville and Salamanca was constructed.

Throughout the different periods, other investments were made to:

- Improve mobility in urban and metropolitan areas with, for example, ring roads around the cities (Málaga with an eligible investment of €292.69 million in 2007-2013) and access routes to Seville in the 1989-1993 period with an investment of €296 million.
- Access roads to rural areas and between districts were improved with the building of 157.8 kilometres and the renovation of 1,135 kilometres of roads in 2000-2006. Examples are conventional inter-county networks, the provision of infrastructure for the 1995 World Skiing Championship in Sierra Nevada (€48.05 million), and the 'Más Cerca' Plan aimed at improving connectivity and accessibility within Andalucía to promote the socio-economic development of less-accessible areas.
- Consolidate public works undertaken in previous periods such as the repair of 19 national highways totalling 279.5 kilometres in 1994-1999 and the maintenance of the Andalucía road and highway network in 2000-2006. A large part of the network was built rapidly on rough terrain. Improvements were subsequently made to the layouts, as well as giving special attention to road safety and environmental and landscape integration with 16,509 kilometres of roads preserved, 1,603 kilometres environmentally adapted and the signposting of 6,276 kilometres of road. An example of an environmentally adapted road was the E381 Jerez-Los Barrios (145 kilometres). The actions taken in the constructions phase created 2,137 jobs.
- The A92 motorway which linked Seville with Granada encountered difficulties in 1996 with the collapse of a stretch of road near Loja, which was followed by three years of works until the reconstruction of the entire stretch between Loja and Moraleda was approved in 2000. Moreover, another two landslides followed within that year, with 1.2 kilometres of road affected. Most recently, the southern stretch to Almería experienced a 50-metre landslide caused by the accumulation of rainwater in 2010.

The magnitude of the reported achievements associated with the actions described above can be seen in the following data.

- In the 1994-1999 period, 1,500 kilometres of mainly newly built roads and highways enabled a 40,000 vehicles-per-day average intensity of traffic.
- In 2000-2006, an increase in traffic of 13,404 heavy vehicles per day was enabled, bringing total traffic to 121,153 vehicles per day and saving users 7,029,513 hours per year, which equals the annual working time of 3,645 people (based on 1,920 hours of work per person per year). The number of jobs created in the construction phase in this period is estimated at 46,936.

Detailed information has been gathered regarding the effects of the A92 on the speed and comfort of trips, congestion levels and number of accidents.<sup>18</sup> Table 10 illustrates the reduction in distances and travel times.

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<sup>18</sup>According to the projections made by Andalusian Economic Analysts (2001) for the A92 South, if this branch had not been built the total number of accidents between 1998 and 2027 would be estimated at 1,814, with 3,191 wounded and 327 recorded deaths. However, the construction of the highway reduced the number of accidents to 1,146 and the number of injuries and deaths to 1970 and 175 respectively for the same period 1998-2027. Actual figures show that, between 1998 and 2001, the figure for road accidents on the A92 South

**Table 11: Distances and travel times\***

Routes	Distance (km)	Time without A92 (min)	Time with A92 (min)	Reduction (%)
Huelva-Málaga	292.80	191.88	161.93	-15.61
Huelva-Almería	487.29	347.11	268.24	-22.72
Huelva-Granada	337.06	235.02	187.02	-20.42
Málaga-Jaén	198.59	128.06	115.40	-9.89
Málaga-Granada	120.34	86.56	73.90	-14.63
Seville-Almería	391.19	295.65	216.66	-26.72
Seville-Granada	240.95	183.54	135.54	-26.15
Seville-Málaga	197.19	141.03	111.08	-21.24
Cádiz-Granada	325.47	229.45	189.32	-17.49

Source: Economic Analysts Andalucía

\* Average speed considered: 100 km/h on the highway and 80 km/h on national and local roads  
These effects have allowed for the better accessibility to markets and production centres and to raw materials.

The statistics show that the volume of traffic on the A92 has been increasing since the beginning (Table 11). That increase is observed both for light vehicles (with high importance given to job commuting, as well as for heavy vehicles (representing around 13-14 percent of total vehicles), as over one-third of Andalucía companies use the A92 for logistical reasons.

These achievements have improved accessibility and enabled an increase in commerce and business activities by ‘unlocking’ large areas of Andalucía. Furthermore, this experience illustrates the rationale of the strategy adopted in the region. The initial investment push from the supply side generated a latter expansion of demand regarding the new infrastructure, unveiling some previously hidden productive forces.

**Table 12: A-92 Traffic volume**

Year	Vehicles km. Year *
1994	1,639,088,564
2000	2,388,212,286
2005	3,326,414,809
2007	3,513,657,393
2011	3,075,575,801

Source: Regional Department of public works and Transport.

\* Does not include A92 North.

The first cost-benefit analysis for the A92 motorway was not favourable (CSF 1989-1993 evaluation, Ministerio de Economía y Hacienda, 1994b). However, further studies (Junta de Andalucía, 2002b) demonstrated the high social economic profitability of the A92, because this highway facilitated the connections with the Atlantic and Mediterranean axis, generating lower access costs for all Andalusian regions. The cost-benefit ratio<sup>19</sup> is approximately 3.4 percent, which is considered to be a high ratio for this type of infrastructure. Recent figures allow an estimate that shows the total saved travel time and the reduction of accidents to be significantly above initial estimates. The travel time saved translated to a saving of €2,039 million and moreover, the social benefits related to car accidents amounted to over €454 million. It should be mentioned that the A92 motorway

was 142, with a total of 24 dead and 248 wounded, with the implementation of the various sections of the highway, the number of accidents was reduced to 90, with a balance of 13 dead and 110 injured (46 percent less).

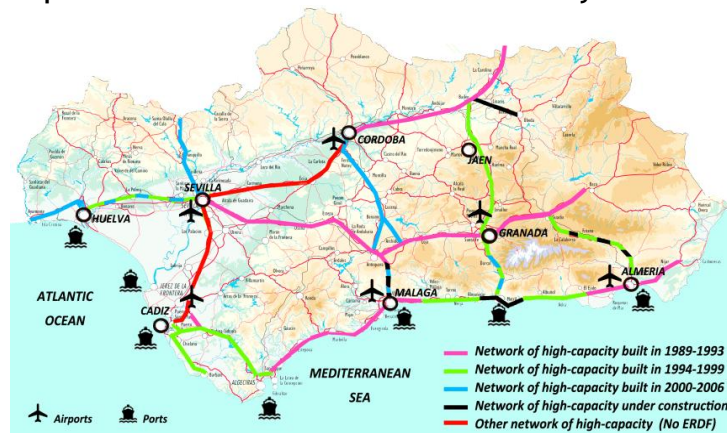
<sup>19</sup> The cost-benefit analysis applied to a period of 30 years and highlighted that the total benefits of the A92 highway rose to €3,710 million (constant 2000 Euros) with a total cost of €1,106 million (mainly infrastructure costs). The difference between benefits and costs were roughly €2,604 million.



affected the central and the northern part of Andalucía as well as the Mediterranean area to a lesser extent.

However, in terms of opportunity costs, the A92 must be compared with other feasible alternatives. The main alternative that was postponed until later programme periods was the completion of the Mediterranean motorway linking Almería-Málaga-Algeciras, one of the most populated areas in Andalucía. At present, most of this motorway has been constructed, but it has yet to be completed as the stretch near Motril (the coast of Granada) is still under construction in the current programme period. Mediterranean areas have gained accessibility to inland Andalucía, Madrid and other parts of Spain, but the motorway network had a comb structure for a long time with the A92 as the main axis and the Mediterranean cities as the ends of the comb tips.

Map 7: Articulation of the Andalusian territory



Source: PDIA 1997-2007

The railway system of Andalucía has been considerably improved and new high-speed lines have been set up connecting the main cities of Seville, Córdoba and Málaga with each other and with Madrid. Map 8 shows the high-speed train network of Andalucía.

Map 8: High speed train lines in Andalucía (2010)



Source: PEIT 2005-2020

The first high-speed line (AVE) connecting Seville-Córdoba-Madrid entered into service with the Seville Expo in 1992 and was the first of its kind in Spain. It was one of the most important projects funded by the ERDF in the 1989-1993 CSF, and it was implemented by the central government. The sub-projects financed in Andalucía were the construction of the double-track line for speeds of 250

to 300 kilometres per hour between Córdoba and Seville (€707.6 million) and other associated facilities (electrification, security, automatic train driving, telecommunications, environmental works and landscape recovery, etc.). The Madrid-Seville line was a large project that required the construction of 16,030 metres of tunnels and 31 viaducts of 9,845 metres. At that time, it would have been extremely difficult for such a large project to be undertaken without the support provided by the ERDF. The new route reduced the journey time of 500 kilometres to 2.5 hours, directly connecting Seville, Córdoba and Madrid city centres. The duration of the journey is comparable to that of planes when airport transfers and boarding times are considered, whereby the new high-speed line not only clearly outperformed travelling to Madrid by car but also provided a comfortable alternative to flying, providing additional advantages such as reliable timetables and computer connections while travelling, so enabling work. The line has supported an annual traffic of close to 3 million passengers since 1999, peaking in 2000 and 2001 at 4 million. On average, over 6,000 users, of which 60 percent are business travellers, travel between Seville and Madrid each day, according to the railway observatory. Since the opening of the line, over 111 million customers have used the route.

In the period of 2000-2006, the new high-speed line (AVE) connecting Málaga with Córdoba (and then to Madrid) was funded by the ERDF through the Andalucía ROP (total expenditure of €1,734 million). The new line became operational in 2007, reaching an annual traffic of 2 million passengers. The Córdoba junction has also supported the Seville-Málaga connection and other railway communications in Andalucía through interchanges and new routes that connect to its path. A specific type of train of lesser speed (AVANT) serves the Seville-Córdoba-Málaga line, completing the route in a convenient time of two hours. Passenger numbers reached 0.95 million in 2008. These types of trains were designed to solve the problem of travelling along tracks with different gauges (the European and the traditional one). In that way, high-speed tracks can be used in combination with conventional ones for passenger routes along the railway system.

Other developments in the railway system of Andalucía funded by the ERDF are:

- In the 1994-1999 period, improvements were undertaken on the 85 kilometre Seville-Granada-Almería network on the conventional intra-regional east-west routes, as well as other actions modernising the lines (139 kilometres of track renewed and 2.5 kilometres buried).
- 393 kilometres of conventional railway were renewed in 2000-2006 improving and modernising the Transverse Andalucía railway axis, increasing the security and speed of rail links and providing an alternative means of transport.
- In 2000-2006, a project of great importance was the burial of the railway in the city of Cádiz. The initial layout of the tracks occupied the centre of a narrow isthmus in the entry to the peninsula where the city of Cádiz was traditionally located. As the city grew in the coastal area outside the peninsula, the new and the old part were solely connected through a bottleneck along the railway. A project based on the burial of the railway enabled access to the city centre and integrated the two parts of the city, the peninsula and its coastal area with the construction of a new high level of urban road permeability and a park.

Most airports received funding for extensions and improvements, whereby investments in 1989-1993 focused on Seville, Almería and Málaga. Later, in the 2000-2006 period, investments were made in Jerez and Málaga with a new terminal building built in Málaga airport as well as other activities connected to urbanisation and access. Málaga airport has a large volume of airport traffic and

numerous international connections associated with the tourist development of the Costa del Sol. It represents a large part (over 60 percent) of total air traffic in Andalucía, with the number of passengers reaching 9.4 million and increasing by 36 percent (up 12.8 million) in 2011.

Investments in ports were made to improve their facilities and operational capacities in accordance with their specialisation:

- In 1994-1999, a large number of small ports received investments aimed at improving their infrastructure for the fishing fleet, with 50,000 square metres of business and commercial areas for trading fish, and enlarging and renovating areas for nautical sports and tourism activities. The outputs include half-a-million cubic metres of dredging, and more than 110,000 square metres were urbanised and/or built; 6,600 square metres of new facilities, and 602 metres of fishing pier unloading space, reaching an average occupancy of 9,186 boats for the ports. In 2000-2006, the main investments were aimed at the creation of sports areas and improvements in facilities and docks. The aim was to promote tourism and recreational boating, improving maritime accessibility, and the implementation of sports berths and associated services. In 2011, Andalucía had 70 sport ports with 21,000 dockages, representing 14.8 percent of the Spanish total. In the fisheries sector, facilities were improved to redirect activities to growing-demand services such as tourism, as well as to promote economic diversification and employment connected to fish processing and marketing activities that generate added value in port environments. The amount of fish sales was maintained at approximately €250 million in spite of the decrease in tonnes from 89,800 in 2000 to 68,400 in 2010.
- In 1994-99, the facilities in Andalucía's large ports were enlarged and new docks built in order to enhance their facilities and operational capacity (4,005 metres of new docks built) to meet expected demand increases. The traffic of containers grew from 1.4 million in 2000 to 2.3 million in 2009 with the number of ships increasing from 28,000 to 33,000 between those years. The 2007-2013 period includes investments to improve the facilities and operational capacity of the Port of Algeciras (€164.15 million expenditure). Container traffic was increasing in Algeciras port at a rapid pace, growing from 1.3 million tonnes in 2000 to 2.2 million in 2007.

In 1994-1999, renovation work was carried out for the construction, improvement and expansion of bus stations (Córdoba, Utrera and Ayamonte). An additional 21 bus stations were built in 2000-2006, increasing annual passenger traffic by 0.5 percent. An important need that still remains to be met in Andalucía is the inter-modality of transport, specifically in urban metropolitan areas, inhibiting the transport links between stations in the city centre to most destinations located in the outskirts of the cities. For this reason, cars remain the predominant mode of transport in Andalucía (Gleave, 2008).

In telecommunications, in the 1994-1999 period, around 99 post offices were equipped with machinery and information systems, telephone services in rural areas in the provinces of Almería and Granada were improved by cellular telephone systems (6,000 telephone lines were installed in areas with difficult accessibility), and infrastructure was expanded and modernised through digital switches and fibre optics.

In energy infrastructure, the extension of the gas pipeline network and improvement of electricity supply in rural areas was achieved in 2000-2006. In this manner, the quality and security of energy supply was ensured through a proper distribution network benefiting 822,268 inhabitants. Moreover, under the National Renewable Energy Plan and the Strategy of Energy Saving and Efficiency of Spain, actions were undertaken to improve the effectiveness and efficiency of enterprises (photovoltaic panels, biomass generation facilities, improving processes, reform and replacement of equipment and facilities, thermo-electric cogeneration as well as other actions). The number of beneficiaries is estimated at 2,618, with over 1,570 jobs created (0.06 percent of employment) and an induced investment of up to €293 million.

### *Environmental Sustainability*

Environmental sustainability received €7,305.8 million of funding until 2011 from ERDF programmes studied in this report until the end of 2011, equivalent to around 25 percent of the overall expenditure across the study period. This amount differed over the periods, with 13 percent of funds spent in 1898-1993 to 37 percent in 1994-1999, to 24 and 21 percent respectively in the 2000-2006 and 2007-2013 programmes (as for the current programme spending is still underway, the figures correspond to CSF's initial allocation).

There have been two main strategic approaches to environmental improvement, as the balance has shifted over the programme periods. Improvement of water supply and sanitation were the priorities in the first periods, with the conservation and protection of natural heritage becoming increasingly important in later periods, especially after 2000.

In 1989-1993, the CSF addressed the water supply and sanitation in cities, and the southern extension of the network of drinking water distribution in Huelva and in Almería, one of the driest areas in Spain. Wider actions were undertaken, such as the improvement of water supply and sanitation mainly in the Bajo Almanzora river area. Moreover, desalination plants were built in Cabo de Gata.

In the period of 1994 to 1999, the water supply for district and metropolitan systems was improved through the construction of 700 kilometres of supply networks, the improvement of feedback systems and regulation (25 new ponds/reservoirs and improvement of 21 dams). In sanitation and water treatment, the installation of more than 1000 kilometres of drainage networks was completed. Moreover, 50 wastewater treatment plants were built.

The water treatment in the Bajo Almanzora and the city of Almería as well as many other locations was continued in 1994-1999. Other actions included sanitation measures in the metropolitan areas of Málaga and the purification plant of Aljarafe II, located in the vicinity of Seville.

Gaps in the water supply for the region were still being covered in the 2000-2006 period. Projects included the following:

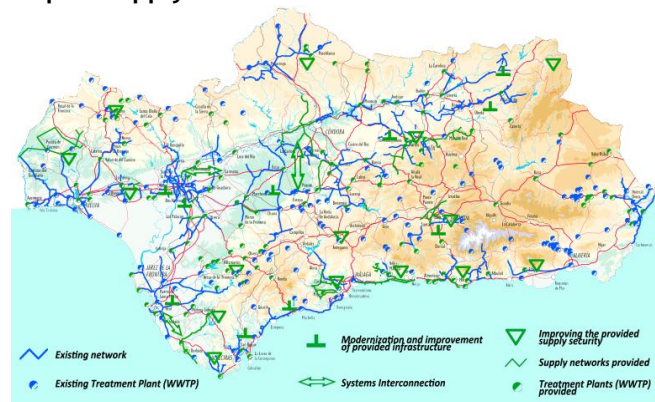
- Over 1,800 kilometres of water provision supply networks were improved, benefiting 3.7 million people.
- Water treatment plants: the major achievements were the increases in the supply and the improvement of water quality (e.g. in the Cádiz area, benefiting one million inhabitants, in Vejer and Barbate for 50,000 inhabitants, as well as in Córdoba and in other places in Seville,

benefiting 210,000 inhabitants). The completion of these actions created around 2,695 jobs in the construction phase, whereby the estimated need for maintenance jobs amounts to 530.

- To increase availability and to improve the management of water resources, the dams of Breña II and Arenoso in the Guadalquivir were built. On the other hand, desalination was conducted to balance the water deficit in the Mediterranean basin of Almería (Campo de Dalías and Bajo Almanzora, Phase I and Phase II), in addition to large pipeline projects (Carboneras to Almanzora Valley and Cerro Blanco to the drinking water station, Atabal). The commitment to desalination as a method to increase water resources in the most deprived areas has not been without problems.
- The most critical are those associated with the high cost of operation (energy expenditure component, among other things) that hinder the use of water for agriculture and irrigation and, secondly, the need for complementary treatments for purification and adaptation for human consumption, which are also expensive. The high fixed costs of large desalination plants makes these suitable for highly populated areas with large demand for human consumption and business purposes.

For sanitation and sewage treatment in the 2000-2006 period, activities focused on purification and sanitation, with integrated actions in important areas (south of Córdoba, Huelva coast, the Doñana area, etc.) in collecting, pumping and discharge and draining of water, amongst other themes. These actions were intended to comply with the requirements of EU and national environmental legislation in this field. Nevertheless, despite efforts, many aspects remain unresolved, especially in the field of operational efficiency and the achievement of the environmental quality wastewater thresholds. In this regard, the distribution of powers between governments is a major problem. The central and regional governments have both allocated investments and therefore treatment and sanitation should be provided, but the operational competence remains in the field of municipalities and local authorities. Consequently, significant problems have been registered in operations connected to the water purification processes which, in some places, are inefficiently conducted due to staff shortages and costs related to operation and maintenance. However, most of the benefits have been achieved in relation to wastewater collection and purification. The table below illustrates the expansion in the volume of wastewater treated in Andalucía throughout the programme periods.

**Map 9: Supply and water treatment infrastructure**



Source: PDIA, 1997-2007.

**Table 13: Evolution of volume of treated wastewater\***

	Treated wastewater			Treated water discharged			Treated water recycled		
	Spain	Andalucía	% Spain	Spain	Andalucía	% Spain	Spain	Andalucía	% Spain
1996	0,1330	0,165	124,1%	0,1160	0,154	132,8%	0,0170	0,011	64,7%
2000	0,1910	0,208	108,9%	0,1720	0,188	109,3%	0,0180	0,016	88,9%
2006	0,3070	0,222	72,3%	0,2770	0,206	74,4%	0,0300	0,016	53,3%
2010	0,2900	0,224	77,2%	0,2610	0,183	70,1%	0,0290	0,041	53,3%

Source: Spanish National Institute of Statistics (INE).

\*Unit: m<sup>3</sup>/hab/day.

Another important need in Andalucía is water management and risk prevention. Among the interventions in infrastructure projects and hydraulic equipment, transmission equipment and data processing to control floods and avenues were installed in the 1989-1993 period (such as sensors, microprocessors, network transmission), and additional works were addressed in Málaga, Granada, Cádiz and Almería. Similarly, other actions improved the efficiency of the existing infrastructure and developed sound management of irrigation water and groundwater. In 2000-2006, the main achievements related to actions such as channelling and defences, modernising irrigation areas, aquifer protection and wastewater reuse (Dalías and Costa del Sol).

The following tables present the main indicators of water infrastructure interventions in programmes since 1994 (without indicators for the 1989-1993 period).

**Table 14: Summary of water infrastructure interventions**

Intervention	Content	1994-1999	2000-2006	2007-2013
Increased water resources	Reservoirs / Rafts	25	3	2 (10)
	Dams	21		1 (2)
	Pumping	114	1	0 (0)
	Pumping stations	14		0 (14)
Water provision	Supply network (km)	704	1,809	298 (2,112)
	Population benefiting from supply networks	n/a	3,711,508	1,675,488 (10,971,564)
Sanitation and water treatment	Conduit or drainage networks (km)	1,004	16	92 (360)
	Water treatment	50	72	7 (32)
	Population benefiting from distribution networks	n/a	8,111,667	2,575,026 (10,631,232)
Avenues and floods	Channelling and arrangements (km)	1,086	387	14 (35)
	Regulation tanks (freshwater)	39	25	0 (20)
	Forest and hydrological actions	62	76	31 (40)
Environmental protection	Infrastructure and actions towards channelling	60	14	9 (137)
	Surface enhanced / protected / reforested (ha)	404,672	116,034	13,903 (186,858)
	Studies	83	515	4 (48)

Another area of environmental enhancement was solid waste recycling:

- In the period of 1989 to 1993, the recycling of municipal solid waste in the area of Huelva was initiated.
- In 1994 to 1999, the treatment plant in Campo de Gibraltar (Cádiz) was built, 133 condemned areas were regenerated and over 50 uncontrolled landfills were sealed and closed. The removal of agricultural plastics and reclamation of mining areas was also acted on.
- In 2000-2006, the main activities included campaigns, solid waste containers, recycling centres and the construction of the transfer station at Écija. The recycling centres and transfer plants enabled the collection of 18,480 tonnes of waste per year. Sealed landfills (Campiña Community, Marchena, Guadalcanal, Montellano, Seville, La Calahorra and Marchal in Granada) and some areas in the vicinity of the landfill in Castillejar, Granada were recovered, and recovery facilities and waste treatment (mainly recovery and composting) plants were built (Alcalá del Río, La Vega Consortium, Estepa, Bajo Almanzora Consortium).

An important action that began in the 1989-1993 CSF and has continued throughout all subsequent programme periods is the Andalucía Forest Plan (AFP). Investments in the AFP during the 1990-2007 period rose to €4,317 million. For the 2008-2015 period, a public investment of €2,444 million is expected, with 45 percent stemming from European funds (also funded by EAGGF). In the first 20 years of the AFP, many reforestation projects were undertaken with an area exceeding 215,000 hectares, as well as 150,000 hectares of marginal agricultural land reforested:

- The AFP began as an ERDF Operational Programme designed to improve natural conditions and production infrastructure, to protect the environment and to conserve natural resources (especially soil and water).

- In the field of environmental action, with the objective of maximising efficiency in fighting small fires such as bush regeneration in Cabo de Gata Natural Park (Almería) and in the Doñana National Park, various forestry activities (changing pine or eucalyptus for native species) and commissioning actions such as the Forest Fire Prevention Programme (FFPP) and the INFOCA Plan.
- Silvicultural treatments, functions of conservation and the improvement of forests and forest ecosystems protection against fires were undertaken for 1,009,185 hectares.
- Integrated control plans enabled the control of unprecedented levels of infestation and the achievement of positive results in the conservation of biodiversity.
- A significant increase in the area of the Andalucía territory under protection has been achieved with an increase from less than 1 percent to almost 20 percent.
- At present, the majority of forest ecosystems are subject to Andalucía legal protection and have been integrated into the Network of Protected Natural Spaces of Andalucía (RENPA) created in 1997.
- Natural areas have been provided in the form of a large network consisting of 850 facilities and infrastructure for public and social use (visitor centres, information points, trails, viewpoints, etc.).

Among other actions of conservation and environmental protection, it is also important to note:

- In the 1994-1999 period, the impetus for the creation of centres of defence and forest monitoring and the construction and improvement of helipads.
- The continued focus on strategic conservation and environmental protection in 2000-2006, with multiple activities in natural areas, the regeneration of areas, reforestation and protection of biodiversity, as well as the monitoring and control measures for environmental quality and pollution.
- The restoration of areas that had supported industrial activities within protected natural areas, the development of prevention and natural monument conservation or the protection of coastal areas through regeneration of beaches (590,483 square metres and 939,047 square metres of shoreline beach)
- The regeneration of marsh and dune systems (510,148 square metres dune field).

Estimates indicate that, in 2000-2006, the actions of protection and regeneration of the natural environment helped to generate 34,790 jobs in the construction phase, and 1,095 jobs were maintained. Finally, the monitoring, control and reduction of environmental pollution have driven the information and monitoring measures (studies, station construction pollution control, and acquisition of equipment for monitoring environmental quality, among others).

### ***Business development***

The regional and multiregional ERDF programmes reviewed in this study invested €730.9 million in the theme of enterprise up until the end of 2011, equivalent to circa three percent of the overall expenditure across the study period. This amount fluctuated over the periods, from one percent of expenditure in 1898-1993 to two percent of expenditure in 1994-1999, to four and one percent



respectively in the 2000-2006 and 2007-2013 programmes (in the current programme, spending is still underway, and the figures correspond to CSF's initial allocation).

Business development policy has increased in importance throughout the different programme periods, broadening the range of project types and using a wider range of tools for intervention. In the initial period of 1989-1993, this Priority was in second place regarding the size of allocated investment in the CSF of Andalucía. However, actions to support business development were implemented by the regional government and the intermediary body in charge of managing the Andalusian Global Grant Operational Programme (the recently-created Institute for Economic Promotion of Andalucía, IFA). In time, the regional development agency (renamed IDEA) acquired a central role in the management of business incentives. In the 2007-2013 programme, the system of incentives for businesses in Andalucía underwent major modifications, whereby the fundamental instrument is now the Andalucía Global Grant for Innovation-Technology-Enterprise OP, an incentive programme managed by the regional development agency IDEA. The aim is to unify the business incentives system to promote business development and to focus on innovation as a strategy to achieve a new growth model based on the knowledge economy. Whilst traditional grants to support the creation, expansion and modernisation of enterprises were maintained, the RTDI, the small business innovative start-ups, and the subsidies for consultancy and advice services to SMEs were added. An innovative action, *Cheque Innovación*, has recently been implemented to facilitate and encourage the use of external innovation consulting services by SMEs. As yet, there is no information regarding the achievements of this new instrument.

Measures to facilitate SMEs' access to funding were implemented in the 1989-1993 Andalucía Global Grant OP by means of financial instruments, mainly in the form of guarantees and subsidies for interest rates. A contribution of €17.85 million was made by the ERDF to a guarantee fund (Mutual Guarantee Societies) and financial support mechanisms (subsidies for interest rates) were implemented. However, information on the separate achievements of these measures is unavailable in this period<sup>20</sup>. These measures were intended to increase access to credit for SMEs and micro enterprises and to reduce the gap between the financial conditions of SMEs and large enterprises.

In the 1994-1999 period, the mutual guarantee system was enhanced with capital contributions to the fund of guarantee companies by an amount of €18.4 million. The main achievements include 2,900 guarantees (amounting €65 million) to facilitate credit access and financial cost reduction for SMEs. On the other hand, interest rate bonus for SME loans were awarded amounting €82.6 million (36.9 percent of ERDF funding in the Andalucía global grant), but the achievements attributable to this particular measure have not been reported. Furthermore, reimbursable grants (loans) have been awarded to young entrepreneurs in order to facilitate funding for starting new companies. Reported achievements include 151 companies created, with and induced investment of €45.1 million and 920 new jobs. These figures come from the procedures of justification of the beneficiaries and are probably reliable, in relative terms they represent 0.14 percent of private fixed capital formation in the period.

In the 2000-2006 programme, these actions were reorganised and the incentives for financial instruments were grouped into a single scheme from 2005 onwards. In total, 1,347 warranties, 212

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<sup>20</sup> Some information on achievements is provided by the ex-post evaluation of the 1989-1993 CSF of Objective 1 Regions in Spain (contained in the introductory part of the 1994-1999 Andalucía ROP, pps. 157-169) but it is insufficient to clearly distinguish among the separate lines of financial instruments and investment grants.

reimbursable grants and 5,266 interest subsidies were awarded, with an investment of up to €3,340 million, representing an important share of 2.1 percent of private fixed capital formation in the period. The reported 17,296 gross jobs created amount to 0.6 percent of employed population which is credible but the reported 133,746 jobs maintained, representing 4.8 percent of employed population seems to be large.

In the current 2007-2013 period, a major reform in the business development incentive system has been carried out through the enhancement of financial instruments. An important change was made in the Andalucía ROP in 2009 in order to allocate ERDF funding (€235.7 million) towards the setting up of a financial engineering instrument fund, the JEREMIE fund. In addition, the regional government revised the incentive system in 2009 without ERDF funding, strengthening the role of financial instruments in an attempt to promote SME access to capital and financing and to simultaneously achieve a more efficient design of the system.

In the 1989-1993 and 1994-1999 periods, infrastructure was built to provide training and advisory services to SMEs, as well as enabling enterprises to gain access to basic economic services (telecommunications, electricity) in industrial areas and business parks. In 2000-2006, business and industrial parks were built focusing on various sectors such as metal-mechanical, manufacturing of automotive components, chemicals, textiles, furniture, etc. Although many of them did not have strategic orientations or parks and service centres, they achieved an occupancy rate of 81 percent due to the need for industrial sites in the region. An area of 5.5 million square metres was renovated and indicators show that jobs were created in a relatively short time (5,995 jobs created, representing 0.2 percent of employees in 2000-2006) with induced investment at €18.5 million.

In 2000-2006, companies' access to consulting services and technical expertise for project development in innovation management and organisation was also boosted through ERDF investment. The consultancy services promoted were mainly in the field of services and product quality management (1,516 projects with an average cost of €6,000 each) and in product design (178 projects, of larger size and average spending of up to €27,000 each). These investments, although of relatively modest amounts, had a positive effect in helping to promote entrepreneurial culture and strengthening the use of consultancy services to companies, which led to an increase in the managerial capabilities of SMEs.

The internationalisation of Andalusian companies was promoted, facilitating their access to foreign markets:

- The regional agency, Extenda, supported international fairs and prepared the Export Programme Groups, consisting of companies oriented towards designing entry plans for foreign markets, reducing risk and the cost of the internationalisation process. Overall, 185 SMEs exported goods and services for the first time, creating 117 jobs.
- The Spanish Institute for Foreign Trade (ICEX) supported services within a plan encouraging SME foreign market entry. Participating companies mostly comprised small businesses with a small proportion of foreign sales and an average turnover of €2.86 million, approximately 23 employees and an average export rate of 7.2 percent (443 companies participated with an investment plan of €17,000 on average).
- The Chambers of Commerce (Council of Chambers) managed several projects:

- The Innocamaras Project, to promote innovation in business strategy through consultancy consisting of the individual strategic analysis of companies (Phase I, 759 projects) and followed by innovation support for the implementation of actions determined in the analysis (Phase II, 150 projects).
- The Nexopyme project intended to encourage and strengthen the use of information technology by SMEs through providing consultancy services in selecting the most suitable ITC equipment (2,627 SMEs and micro-companies benefited, with an average spend of €5,300).
- The Census-Digital project intended to boost the use of digital certificates and electronic signatures between companies by explaining the benefits of these and explaining (59 workshops and 18,831 certificates were obtained, with an expenditure of €346,800).

In addition to the effects of the projects listed above, the capability of these institutions to establish a connection between businesses is expected to result in increased awareness of the competitive advantages associated with this type of innovation and in further orientation to foreign markets.

Overall, progress was made in business development and entrepreneurial culture throughout the programming periods but the achievements were insufficient to substantially change the entrepreneurial system in Andalucía. The results of the online survey showed that ERDF measures were more effective in transport infrastructure than in fostering the growth of new and existing enterprises and in supporting internationalisation of businesses.

### *Structural Adjustment*

The ERDF programmes reviewed in this study, regional and multiregional, invested €3,310.5 million in the theme of structural adjustment until the end of 2011, equivalent to approximately 11 percent of overall expenditure across the study period. This amount fluctuated over the periods, from 9 percent of expenditure in 1989-1993 to 11 percent of expenditure in 1994-99, to 12 and 15 percent respectively in the 2000-2006 and 2007-2013 programmes, whereby spending is still ongoing in the current programme with figures corresponding to CSF's initial allocation.

Various courses of action have been deployed in this field which have ranged from classic incentives for company investments in backward areas, to industrial diversification, tourism development and to incentives for the modernisation of productive technology and strengthening competitiveness.

Using investment grants as incentives to attract capital and business projects to the region was the classic measure undertaken in this area. However, through the Andalusian CSF 1989-1993, the ERDF co-financed a set of projects for industrial development focused on priority sectors in Andalucía (such as the food industry, the electronics industry, information technology, telecommunications, etc.), but these cannot be commented on due to the lack of indicators related to the ERDF interventions.

**Table 15: Reported achievements 1994-2006**

Period	Measure	Project No.	Induced investment	Investment / Projects	Jobs	
					Created	Maintained
1994-1999	Investment incentives for business creation and modernisation	621	€168.04 m	€0.27 m	18,714	
	Grants for industrial promotion and development					
	Planning and industrial control					
2000-2006	Incentives for investment in business creation and modernisation	10,495	€5,659.5 m	€0.54 m	14,997	66,406
	Grants for industrial promotion and development					
	Programme for investment in business creation and modernisation (IDEA agency)					
2000-2006	Incentives for location in special action zones (ZAE)	26	-	-	150	280
2000-2006	Regional incentives	674	€3,543.02 m	€5.26 m	11,663	33,959

The structural adjustment measures during the 1994-1999 period were focused as follows.

- Attraction and promotion of investment was implemented through regional incentives that attracted several major projects including Eastman Chemical Spain (Bay of Algeciras), INTERQUISA and Atlantic Copper. Moreover, the Special Action Plan for Industrial Zones (ZAE) in crisis offered €17.2 million in aid grants (€18.23 million) to the vast majority of SMEs' manufacturing projects.
- Grants for the promotion of industrial development aimed to increase value-added in the food-processing industries, contributing to the development and consolidation of technologically-modern enterprises that could impact positively on other businesses, as well as improving the level of training and professional qualifications.
- Investment incentives for the technological and managerial modernisation of the industrial sector aimed at improving methods and techniques, leading to a higher efficiency of processes and quality of products. In total, 405 projects were supported with an investment of €408,000.
- The Management Programme for industrial control focused on upgrading the desired conditions of safety and quality in products and facilities. 155 companies were beneficiaries of grants of a relatively small amount (€17,000 on average and €18,000).

In the 2000-2006 programme, the following measures were undertaken for the support of industrial sectors:

- Programmes were continued for boosting investment in problematic areas (ZAE of Cádiz, Gibraltar, Jaén, etc.). Overall, the incentives to businesses locating in the ZAE achieved relatively modest results due to the difficulties associated with the revitalisation of these declining industrial areas (26 projects with 150 jobs created and 280 maintained).

- Similarly, actions for the promotion of industrial development for reinforcing supply chains, for upgrading production technologies and for generating high-value-added products were continued from the previous period.
- The most significant achievements of these actions are shown in Table 14 and consist of 924 companies created and 9,443 enlarged or modernised (representing 1.2 percent and 12.7 percent of the 74,470 net companies created in the 2000-2006 period), implying an induced private investment of €5.6 billion (a significant share of 3.56 percent of the private fixed capital formation in 2000-2006) and a reported 12,176 jobs created (representing 0.4 percent of the employees) and an estimated 42,600 jobs maintained, a sizeable figure that is not reliable.
- Classical regional incentives (included in the NOP for competitiveness) were used for the promotion and attraction of investment. These incentives encompassed 674 projects of a significant size (with an average of €5.26 million of private investment and 17 jobs created per project). Overall, private investment reached €3.5 billion (representing 2.23 percent of private fixed capital formation in Andalucía in 2000-2006), with the creation of 11,663 jobs and the estimated maintenance of 33,959 jobs (representing 0.4 percent and 1.2 percent of the employees in the 2000-2006 period).

In the current period, 2007-2013, the measures started in previous periods have continued (regional incentives, modernisation aid, etc.). However, the economic crisis and time lag in the commencement of the programme period have had a significant negative impact on measures depending on company investments, especially on classical regional incentives.

An important need in Andalucía has been support for tourism development in certain areas. From the first programme period onwards, the objectives in tourism were focused on diversification and the creation of a brand image for Andalucía. Diversification is aimed at developing new forms of tourism, especially inner and rural tourism, which is further commented on in the section on territorial development.

Actions promoting Andalucía as a tourist destination were launched through the presence (at international fairs, in media, promotional material, etc.) and marketing actions to stimulate demand from Spain and the main foreign markets in Europe, as well as the promotion of the most significant segments of tourism demand (sports, landscape, culinary or cultural tourism). Experts interviewed revealed that the creation of the Public Company of Andalusian Tourism facilitated the use of the ERDF in these promotional campaigns. However, it is difficult to estimate the extent to which ERDF funding contributed to the increase in tourism in Andalucía which has increased by 36 percent in the 2000-2006 period by 6.6 million tourists, from 18.6 million in 2000 to 25.2 million tourists in 2006<sup>21</sup>.

Other measures such as marketing platforms and reserves have been unsuccessful due to the difficulties associated with achieving cooperation amongst competitors operating in the sector. Another form of aid given to the sector are SMEs support programmes, aimed at improving the hotel industry, introducing new technology and encouraging the emergence of new companies linked to the various tourism sub-sectors. Over 3,000 SMEs were beneficiaries.

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<sup>21</sup> However, in the current period, Andalusian tourism has suffered due to the crisis, with a fall of 4 million tourists, from 25.8 million in 2007 to 21.8 million in 2011.

Despite the described actions, the industrial sector (with the exception of energy and construction) remained relatively modest, with its weight reducing from 11 percent of regional employment and GVA in 1999 to merely 9 percent in 2007. During the growth cycle of the 2000s, the Andalusian industry created merely 19,000 new jobs (165,000 in construction and 468,000 in services). The low rate of employment supply in the industrial sector is one of the main reasons behind Andalucía's low level of GDP per capita (La Caixa, 2008). Structural adjustment has failed in its attempt to build a sustainable manufacturing sector strong enough to significantly diversify the economic base of Andalucía and reinforce its potential to develop into a growth model focused on innovation and productivity. Diversification has mainly occurred through advances in tourism.

### *Innovation*

The priority of innovation was allocated the amount of €1,151.3 million through ERDF programmes until the end of 2011, equivalent to approximately to 4 percent of total investments across the study period. This amount varied over the periods, from 2 percent of funds spent in 1989-1993 to 2 percent in 1994-1999, to 7 and 19 percent respectively in the 2000-06 and 2007-2013 programmes (as for the current program spending is still underway, the figures correspond to CSF's initial allocation).

The actions in the field of innovation have grown in financial importance over the programme periods, and innovation has been established as a key strategic priority for the improvement and enhancement of business competitiveness in Andalucía. However, a clear imbalance can be observed when comparing the impact of ERDF interventions on the innovation activities of the public and private agents. Substantial improvements have been achieved regarding the capacity of the public innovation system in Andalucía but the actual impact of these actions in the private sector, fostering innovation in businesses, has been less noticeable and in this respect the results have not been fully satisfactory. The average small business size, the sector specialisation and the lack of an entrepreneurial orientation in Andalucía companies may have limited the effectiveness of support measures to stimulate business innovation.

The ERDF laid the groundwork for many of the subsequent strategic developments in innovation in the region during the 1989-1993 period. Despite the lack of data on outputs and impacts during this time, information on projects and financial information is available for this period. Projects ranged from the construction of the Marine Science Complex in Cádiz, the construction of the Technology Park of Andalucía (PTA) in Málaga, and the provision of scientific equipment to research centres and universities, to the modernisation of agriculture with the promotion of technological innovation in greenhouse crops in Almería.

The Technology Park of Andalucía (PTA) was created in 1992 and has grown steadily to employ 14,599 workers by the end of 2011 and to encompass 562 entities currently present in the park, which is being enlarged to 375 hectares due to high demand. The contribution of the park to the Málaga economy is estimated to be between 6 percent and 8.6 percent of the provincial GDP, with an employment contribution of between 7 percent and 10 percent of the regional employment. In the case of the PTA, from a long-term perspective, the regional innovation policy was capable of successfully mobilising the private agents and promoting an innovative business cluster. This strategy was replicated later in other technology parks with questionable results in some cases. There are currently 11 science and technology parks distributed across the Andalusian territory.

In the 1994-1999 programme, funding continued to be allocated to universities and research centres with the difference that it was specifically aimed at research groups and the researchers themselves with the objective of encouraging research activities. Over 12,000 research projects were financed throughout the 5 year period with over 10,000 qualified (PhD) researchers involved in research groups<sup>22</sup>. These researchers were mostly employed for the universities and research centres prior to the awarding of the ERDF funded projects. This reorientation evolved naturally following the improvement in the R&D infrastructure and equipment resulting from prior actions.

In the high-tech sector, the introduction of media and high-tech equipment facilitated manufacturing programmes in aeronautical factories, the largest of which was the Construcciones Aeronáuticas S.A. (CASA<sup>23</sup>). These technological improvements paved the way for the consolidation of the aeronautical cluster in Andalucía and the creation of the Andalusian Aerospace Technology Park (Aerópolis) in Seville in the following period. Aerópolis commenced operations in 2003 and is devoted exclusively to aeronautics and aerospace activities. It was conceived to support the Andalusian industry for large Airbus projects that were partially developed in Seville, e.g. the military transport plane A400M and the manufacture of high-technology components for the Airbus 350. The public intervention in this sector has reinforced an industry with tradition in the area by boosting innovative capabilities in the cluster.

During 2000-2006, the innovation strategy was further defined in this direction to meet the specific needs and potential of Andalucía according to its sector specialisation and productive clusters. The main objective was to promote and coordinate the regional innovation system, which had gained considerable complexity due to previous efforts and developments, although these were mainly concentrated on the public agents. In this period, four lines of action were developed with the aid of ERDF funding: the first, mostly in the public sector, was the support of research projects and equipment endowment programmes. The second line of action was directed toward the transfer of knowledge and technology and the development of applied research in various fields with a large presence in Andalucía (health, farming, aquaculture and fisheries, etc.). A third line of action was devoted to the development of public research centres and technology centres associated with the most important sectors in Andalucía. Finally, the fourth line of action was the promotion of ICT.

On the first line of action, the ERDF financed over 3,362 research projects benefiting 18,583 researchers and over 2,109 research groups. Most of the projects were allocated to research groups with the intention of encouraging the formation of groups and team work, fostering the transmission of knowledge and consolidation of research and enabling a continuity of the research despite possible changes of the group members. The projects were selected through public calls and with the subsequent assessment by a group of independent experts, whereby the majority were chosen due to their academic value with a small number of projects included for their potential economic benefits. Projects were mostly conducted in universities and public research centres due to the difficulties experienced when trying to foster innovation in the private sector. The majority of the projects, 62 percent, focused on research groups in different areas (physics, chemistry, IT, biology and environment, as well as social sciences and humanities), 14 percent were on

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<sup>22</sup> ERDF funding was used for buying equipment and materials for research, for attending and organising conferences and workshops and to a lesser extent to hire research assistants.

<sup>23</sup> In 1999 CASA became part of European Aeronautic Defence and Space (EADS) Company and was renamed as EADS-CASA.

biomedicine and health sciences, and the rest focused on industrial and food technology. Regarding business projects, 62 projects were allocated to Andalusian enterprises by the Centre for Industrial Technological Development (CDTI) in Spain, with the most important supporting large projects in the fields of renewable energy (bioenergy), chemical industry (fertilisers), frozen food preservation, food packaging materials or RTD (laboratories and technological equipment).

An effort was made to help Andalusian universities and research centres to improve the development of their activities, whereby 48 centres were renovated and scientific and sophisticated technological equipment was installed to provide research groups and technicians with the means to conduct various tasks in fields such as genomics, IT, agriculture and health (Functional Genomics Laboratory in Málaga, IT centre in Almería, the biomedicine laboratory in Granada). In the selection of these investments, the economic development of the region was kept in mind, focusing on the creation of strategic technological resources aimed at fostering sustainable entrepreneurial development in specific areas (biotechnology and biomedicine, IT, agri-food technologies, environmental technology).

**Table 16: Outputs and results**

Area	Actors	Outputs / Results
Research projects	Universities and research centres	575 regional, 2,787 national research projects 18,583 researchers 2,109 research groups (62% research groups, 14% biomedicine and health sciences) 800 patents
	Enterprises	62 projects of technological industrial development, large projects in the fields of bioenergy, fertilisers, frozen food preservation, labs and technological equipment, etc.
Scientific-technological Infrastructure and equipment	Universities and research centres	48 renovated centres 47 supported centres 1,148 scientific and technological equipment covering sophisticated and specific technologies for example, functional genomics laboratory (Málaga), computer architecture and IT (Granada), physiological labs (Seville), etc.
Technology transfer	University transfer offices and Centre for Innovation and Technology Transfer of Andalucía	19,379 contacts for information exchange with companies and centres 281 patents 8 large scientific and technology equipment for technology transfer
Research and technology centres	Non-profit, private and universities	58 scientific and technology sophisticated equipment to be shared by different research groups in order to optimise its profitability Creation of the natural stone technology centre Infrastructure and labs for technology centres: design, land transport and materials, leather, fisheries, agro-food industry, ICT.

The progress made in scientific and technological research is evident in that Spain's involvement in the world's scientific publications has doubled, increasing from 1.28 percent in 1990 to 2.63 percent in 2004 (de Moya, 2007). Andalucía has kept up with the pace, with its contribution to Spanish publications growing from 13.1 percent in 1990 to 14.4 percent in 2004.



According to the Science Creation Index, the number of scientific documents published by Andalusian higher education institutions increased by 32 percent between 1996 and 2001, and increased again by 49.6 percent from 2001 to 2008, compared with the Spanish average of 24 percent (OECD, 2010). The impact of Andalusian publications as registered in Thomson Scientific<sup>24</sup> rose by 12.3 percent (annual average) in the 1990-1994 period, 10.0 percent in the 1995-1999 period and 6.5 percent in the 2000-2004 period.

Furthermore, Andalucía's participation in the European research Framework Programmes has increased steadily over time. Andalusian projects represented 3.2 percent of the total Spanish projects approved in Framework Programme 3 (FP3). This proportion rose to 5.3 percent in FP6, where 176 Andalusian projects were approved funding of €40 million. In the current programme, FP7, Andalucía obtained 57 projects with €24.6 million funding (until 2012).

With regard to the second line of action, technology transfer is one of the areas in most need of a coherent policy in Spain, particularly in Andalucía. In this area, the objective is to encourage and promote the transfer of Andalusian research results and to promote collaboration between research centres and industry. The measures were deployed through the Offices of Research Results Transfer (OTRIs) of the universities and the Innovation and Technology Transfer Centre of Andalucía (Andalucía CIT). Special attention was paid to agriculture, fisheries and aquaculture. An indication of the extent of activities carried out for expanding the transfer of technology is the 19,379 contacts made between universities, technology centres and enterprises.

These actions have had some positive results. The number of patents in Andalucía continued to increase, from an annual average of 1.2 per million people in the 1986-1988 period to 6.7 in 2000-2006 (the indicator increased by more than five times), but it decreased to 5 in 2007-2009. The achievement of 1,081 patents stemmed directly from the ERDF-funded actions, of which 281 were developed in cooperation with enterprises and were intended for specific industrial use. However, the transfer of research results from R&D centres and Universities to the business sector is far from satisfactory. This can be partially attributed to the design of the interface mechanisms (OTRIs, technological centres, etc.), but also to the structural characteristics of the business population in Andalusia. The regional production system is characterised by a low proportion of large and medium-sized companies with a real capacity to undertake significant investments in RTDI. The excessive presence of micro-enterprises poses an obstacle to public interventions aimed at fostering innovation in businesses. In addition, Andalucía has traditionally lacked real entrepreneurial culture and business owners often assume an unimaginative and unadventurous approach to the management of their companies. As a result, efforts to stimulate innovation in the private sector face serious difficulties in order to be effective. Furthermore, the productive specialisation of the Andalucía economy towards tourism and other, generally non-RTDI intensive, sectors influences the overall achievements of the regions in this area.

The third line of action, the provision of a network of science and technology centres, encompasses:

- 58 projects for the renovation and expansion of facilities for scientific and technical research, for example the project of the National Research Council (CSIC) of Andalucía, which built the new headquarters of the Doñana Biological Station and the Centre for Research on Information Technologies and Communications of the University of Almería.

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<sup>24</sup> Science Citation Index (SCI), Social Science Citation Index (SSCI), and Arts & Humanities (A&H).

- The construction of the new technology centre for the natural stone industry in Almería (CTAP). CTAP develops projects aimed at boosting the natural stone sector in Andalucía (42 percent of the national production of marble) and has become the strategic partner of 400 companies in the marble sector, helping them to increase competitiveness. CTAP's services are in demand with companies, and consequently CTAP had revenues of over €3 million in 2009.
- Infrastructure and labs for the many centres listed in Table 15 related to relevant sectoral areas in Andalucía.

**Map 10: Location of ERDF supported technology centres of Andalucía**



1. Andalusian Stone Technology Centre (CTAP), Almería.
2. MOVEX Foundation Leather Technology Centre of Andalucía, Cádiz.
3. SURGENIA, Andalusian Technological Centre of Design, Cordova.
4. Andalucía Lab, Centre for Innovation in Tourism in Andalucía, Málaga.
5. Andalusian Centre of Innovation and Information Technology and Communications (CITIC), Málaga.
6. Centre for Advanced Aerospace Technologies (CATEC), Seville.
7. Andalusian Institute of Technology (IAT), Seville.

Source: PDIA.

A network of 22 technology centres has been deployed, some of which are located in the science and technology parks. The objective was to increase the competitiveness of Andalusian companies in traditional and emerging sectors, which were part of local clusters, facilitating their attempts at innovation. This strategy has yielded some successful cases, such as the Centre for Advanced Aerospace Technologies (CATEC), the Andalucía Centre of Innovation, Information and Communication Technologies (CITIC) and the Andalucía Stone Technology Centre (CTAP).

However, a number of centres are experiencing difficulties to consolidate their activities. The main problem is the manner in which to effectively connect the technological centres with the SMEs operating in these traditional clusters and to create a real culture of innovation. Many of the centres are oriented towards sectors and local businesses with a low demand for their technological services. As previously commented, this is in part due to the characteristics of SMEs in Andalucía, but the supply side strategy and top-down approach with which these initiatives were planned have also contributed to the disconnection between the centres and businesses.

The technology centres operate as foundations in which public institutions (the regional development agency IDEA, local administrations, universities, etc.) as well as private companies

participate as members. However, many of them are currently highly dependent on public transfers for the support of their activities. In this respect, greater participation and a more real involvement of the private sector operators in the designing and functioning of these centres would be desirable .

The consolidation of some of these centres would require more time and the adoption of a sustainable and financially-viable model of operation. However, the economic crisis has come too soon for some of these centres, placing consolidation under threat, especially as it has affected the financial ability of private companies and public support.

Scientific and technological parks, technological centres together with the European centres of firms and the innovation and technological centres form the Technological Space Network of Andalucía (RETA). The RETA was formalised as a private non-profit association in 2005 with the aim of boosting innovation and technological development.

Finally, in the area of ICT development, electronic systems were established for the delivery of public services to citizens. Important achievements include:

- In health services, the implementation of the electronic Health Card detailing patients' medical history together with the implementation of the Andalusian Health Service Intranet, which is a network of information used by 50 hospitals (regional and local) and primary care centres to increase quality of medical services with the provision of telemedicine and the online availability of test results. Moreover, it allows for a more efficient management of medical services. The emergency call system, new Emergency System Andalucía Management (112 number), was enhanced with the establishment of automatic response systems facilitating a more rapid response to emergencies.
- In education, computers and internet access were provided in all schools.
- In agriculture and fisheries, the integrated agricultural information system was created for registering geographical information and crop forecasting.
- In environment, the environmental information network system was promoted to improve decision-making and management of natural resources and environment and the impact of meteorology on the level of air pollution.
- It is estimated that private companies hired to implement applications and systems have created 421 jobs (gross) and maintained another 877.

Finally, it is worth mentioning the GUADALINFO project, which is among the largest public interventions in Spain for citizens' accessibility to broadband Internet in rural areas and small towns. The website, which is called Guadalinfo.net, was created and computer equipment, furniture and activities were provided in 637 municipalities with fewer than 10,000 inhabitants, creating centres of public internet access. This project created around 670 jobs.

Despite the ERDF emphasis give to the field of RTDI in the later programming periods, the realised achievements on RTDI stemmed mostly from the public sector and from publicly owned institutions,

reflecting the lack of private sector capabilities. On the whole, the regional innovation system depends heavily on the support of the public sector which inhibits future growth and sustainability. However, developments in RTDI have been assessed as one of the most significant improvements in the region in the online survey, still lower in importance than transport infrastructure but with a significantly higher rating than structural and entrepreneurial policy.

### *Education, Health and Social Services*

The regional ERDF programmes analysed in this paper, invested the sum of €1,465.8 million in social cohesion until the end of 2011, equal to around 5 percent of total expenditure across the study period. The amount differed over time, from 2 percent of expenditure in 1989-1993 to 26 percent of expenditure in 1994-1999, to 5 and 8 percent respectively in the 2000-2006 and 2007-2013 programmes (as for the current programme spending is still underway, the figures correspond to CSF's initial allocation).

ERDF funds have contributed to the development of health infrastructure, education and social services, which has enabled the territorially-balanced and socially-inclusive development of Andalucía. Some examples of actions in each field are explained in this section in order to illustrate the main achievements.

In Health, the highlight between 1989 and 93 was the construction of two major hospitals, the Osuna (Seville) -239 beds- and El Ejido (Almería) -290 beds- with total investment in both at €53.6 million (at constant prices in 2000), with ERDF aid at €26.8 million. In the 1994-1999 period, the Antequera Regional Hospital was built (206 beds), the network of primary care health centres was renovated and improved (reform and renovation of 200 sites), and renovations of over a dozen hospitals were undertaken, e.g. the Virgen del Rocío in Seville and the Virgen de las Nieves in Granada. Simultaneously, in order to improve the efficiency of healthcare, clinical amenities and services were extended in areas such as radiology and gamma cameras.

In Education, a study was carried out in the 1994-1999 period on the location of schools with the aim of improving supply in under-served areas. The decision to expand secondary education to 100 percent of the population by making it mandatory was an important task in the strengthening of the educational infrastructure. The increase in demand for secondary education led to the enrolment of over 300,000 students. Consequently, 103 new schools were built with the support of ERDF funding, as well as the provision of 17 new libraries. Moreover, 34 new primary schools were built, resulting in 3,750 new places in primaries and 1,338 new places in nurseries.

In the field of training of professionals and executives, the Canadian pavilion in the Science and Technology Park of Cartuja-93 was adapted for the operation of the training centre of the Industrial Organisation School (IOS). Finally, multiple investments were made in order to expand and improve university facilities in Andalucía. These actions are described individually in the Andalucía Operational Programme's final report and range from the creation of an Institute of the University of Málaga in the Andalucía Technology Park (PTA) to the Experimental Animal Health Centre in Agri-food at the Campus University of Córdoba, the construction of the Polytechnic School of Linares at the University of Jaén, and the enlargement of the School of Industrial Engineering at the University of Almería.

During 2000-2006, investment in education was continued with the construction, renovation and equipment of schools and training related to:

- Specific vocational training programmes, such as the School Consortia Programme and centres specialising in occupational training (construction and equipment of workshops and centres, joinery and industrial ceramics in Bailén, tourism training in Málaga).
- The improvement and adaptation of non-university centres and the construction, equipment and improvement of universities, whereby 116 centres were created, 825 refurbished, 4,053 centres equipped and 2,623 school units created or adapted. The number of jobs created in the construction phase is estimated at 206.

During the period, new sports and leisure facilities were built, linked to the objective of social welfare. The achievements in this area included the building of 23 new indoor pools, 18 new sports centres, 5 new football fields and artificial turf, which have benefited 545,650 users, created 1,885 jobs and maintained 336 jobs. Centres for groups at risk were created and operated. The required facilities to complete the Network of Social Emergency for the drug-addicted population in Andalucía were implemented. Furthermore, a number of centres were constructed, renovated and equipped in order to meet the targets in the care programme for young adults placed under guardianship. Fourteen shelters and assistance centres were created, benefiting 928 users, 26 centres were renovated, benefiting 3,678 users, and 55 jobs were created in the maintenance phase.

On the whole the objectives set in the priority of education emphasised the expansion of universities to all of the main cities and advances were made in creating new technological university level schools (some of which focused on sectors of primary importance to the region, for example, tourism in Málaga), but the strategy did not sufficiently take into consideration the particular needs of separate areas in the region. Moreover, developments in vocational training were lacking in that the diversification of the skills available in the region was not fully achieved.

### *Territorial Actions*

The goal of maintaining a regional balance was always present in the development strategy of Andalucía. To achieve this, the development of transport infrastructure played a key role, as noted above. Along with the large projects for external and internal accessibility, it is worth mentioning a large number of small-scale local projects. These could be identified as the actions of the 'Más Cerca' Plan, the development of intra-regional and provincial networks of roads, and improving systems of urban and intercity transport.

Another key line of action in territorial rebalancing has been the promotion of the use of tourism as a means for diversification and economic sustainability in interior areas with natural values, either scenic or cultural.

In the 1989-1993 period, the Regional Government of Andalucía created a specific project - the 'Tourist Villages' - and invested in the launch of the first tourist services in order to raise awareness of the possibilities and the potential rebalancing capacity of revenues generated by tourism. ERDF funding was used for the construction of country inns (hostels) (Villas Turísticas) aimed at empowering rural tourism in various landscape and natural areas in inner Andalucía. The

testimony of several experts involved in this project was unanimous regarding the positive impact that this had in energising isolated and backward areas in particular. Positive effects were observed on the reputation and tourism demand, as well as the flexibility of the private supply of tourist services. The evaluation of the 1995-1999 LEADER II measure of rural tourism provides some evidence of these effects. On average, the supply in terms of capacity increased by 407 new rooms in the areas where the 'Tourist Villages' were located, with a further 177 rooms renovated.

Some of the disadvantaged areas that were transformed by the project were: Alpujarra (Granada), Cazorla (Jaén), Aracena (Huelva northern) and Grazalema (Cádiz). Private initiative was mobilised in the region focused on the generation of new economic activity (restaurants, hotels, trade), favouring the viability of local businesses and revitalisation of the local economic fabric. Some projects, as in the north of Huelva, did not achieve the expected results, but in most cases projects succeeded in branding the area, attracting tourists and revitalising local business. However, entrepreneurs reproached the competition generated by the public supply of villas against private businesses and, as a consequence, the programme was limited from 1994 onwards. This initiative is an example of the potential benefits derived in some cases from a supply side approach, such as the one often implemented in Andalucía. The supply-push strategy both stimulates other business initiatives in these local areas and generates a new demand for this type of tourism.

The Andalucía tourism plan continued to emphasise elements with a singular value such as scenic, gastronomic, cultural or historic heritage, which elevated the product appeal of tourism in Andalucía and contributed to diversification beyond the 'sun and beach' model. Therefore, tourism infrastructure and conservation and rehabilitation activities were important areas of action that contributed to the further enhancement of the rich historic and artistic heritage legacy of Andalucía, its natural and scenic values and cultural personality (heritage, folklore, etc.), whilst maintaining the territorial balance.

In the 1994-1999 period, many renovations were initiated in the field of tourism, including on landmark buildings such as the restoration of the Parador de Granada or the Royal School of Equestrian Art, along with many palaces, buildings of architectural interest, and pieces of historic and cultural heritage. Over 200 buildings were renovated.

The operation of publicly-owned tourist facilities such as hotels and tourist villages in places with unique landscapes (Laujar de Andarax, Segura de la Sierra, etc.) continued in this period, but the number of these gradually decreased as private facilities took off. Investments in the renovation of tourist sites to increase their appeal remained important in this period. Investment plans (beach equipment programme, excellence and dynamism) were often designed and carried out by the regional government in collaboration with the municipalities involved.

In the 2000-2006 period, the renovation of tourist sites was continued (tourist access and infrastructure), generating over four million visits per year, with the renovation and preservation of buildings and monuments attracting an estimated 5.6 million visits per year. These figures mainly capture the number of visits to sites and monuments that have been renovated with ERDF funding; they are plausible figures which would not be produced without the renovation activities. It is difficult to ascertain how many of these sites would be renovated in the absence of ERDF funding, but it is likely that fewer renovations would have been undertaken. The main activities included the renovation and expansion of the museum network in Andalucía, the conservation of cultural heritage (archaeological and prehistoric enclosures, Roman and Arabic), the restoration of monuments (cathedrals, churches and castles), cultural exhibitions (Al-Andalus, Arabic Andalucía,

Contribution to Science organised by the Foundation for the development of Andalusian Legacy), as well as the provision and building of tourist infrastructure such as equipping beaches with sanitary equipment and creating hiking trails.

These accomplishments all contributed to the importance that alternative forms of tourism to 'sun and beach' have today. According to estimates based on the survey of the Andalucía Tourism Situation (ECTA), 3.4 million tourists visited the interior of Andalucía in 2010, representing 16 percent of total tourist visits to the region (Department of Tourism, Trade and Sport, 2011). It is also estimated that approximately 1 in 4 tourists visiting Andalucía in 2009 listed the visiting of monuments as the main motivation in choosing it as their destination (Ministry of Tourism, Trade and Sport, 2010). These tourists generated revenues of around €2.2 billion in 2009. According to estimates by the Ministry of Tourism, Trade and Sport (2004), Andalucía received a total of 1.9 million tourists in rural areas in 2003 representing 8.8 percent of the total tourists to Spain, generating revenues of up to €725.3 million, and representing a contribution of 5.14 percent of this type of tourism income. According to the Survey of Occupation of Rural Tourism, the annual number of overnight travellers in rural Andalucía nearly tripled from 180,430 overnight stays in 2001 to 511,619 in 2011.

The investment in infrastructure and community facilities in small and medium-sized towns was another important action. It sought to strengthen the role of medium-sized towns (between 20,000 and 30,000 inhabitants) as a lever of regional balance, in order to overcome the concentration in the metropolitan triangle Cádiz-Seville-Málaga and the tendency towards a populated coastline with a lack of population in the interior. The average city network comprises a set of well-connected villages that have developed their local economies through trade and competitive business sectors facilitated by the improvement in infrastructure.

### ***5.1.3 Institutional factors affecting achievements***

From the time of Spain's entry into the EU, central and regional governments have collaborated in the programming and the management of the operational programmes. The establishment of specialised general directions (DGEP) in economic planning and management of European funds has facilitated the coordination and the design of appropriate mechanisms for instrumentation. The dialogue and coordination between central and regional government DGEPs was continuous and managed to channel most to the problems.

Steps taken by various levels of government have been coordinated according to their fields of competence. There are no noteworthy issues in this regard, except the complementarity between the Andalucía's regional development policy and the Structural Funds, as well as the integration between the programmes' annuities and the budgets of the central and regional governments. Both issues are discussed in the sections on complementarities and strengths in implementation. Nevertheless, the budget instrumentation of the annual operational programmes deserves some comment.

The planning - programming - budgeting cycle in Andalucía (like in other Objective 1 regions of Spain) was completed with the integration in the budget of the beneficiary bodies of the eligibility conditions and the ERDF allocated funding. The procedure had the effect of facilitating the implementation of the funds and their intended achievements.

Coordination with local levels of government was carried out properly, in general terms. However, a certain imbalance between the competences and the financial and technical capabilities of local authorities in Andalucía posed problems for waste water treatment procedures. The central and regional governments built wastewater treatment plants and transferred them to the municipalities, but future operating conditions were not studied and agreed, and in many cases local governments provided neither technical staff nor the most appropriate treatments for purification.

Other municipal infrastructure may have experienced relatively similar problems, where the local administration has received regional or central funds (in some cases ERDF co-financed) for some infrastructure having problems in meeting their operating costs. The Vélez-Málaga tramway is an example of this type of issue.

## **5.2 Complementarities and synergies**

Coordination among EU Structural Funds and domestic funding in Andalucía, like in most of Spanish Objective 1 regions, starts at a planning level. The successive regional strategic plans provided the grounds for the regional development plans and the negotiation of the separate Community Support Frameworks (CSF). Regional development plans are usually the basis for negotiating the measures and priorities which are allocated EU funding. In this manner, EU resources are embedded in regional strategic planning at a planning level. The case of the Andalucía Competitiveness Strategy (ECA, 2007) is a good example as it provides the overall framework of regional development needs and policies for the current programming period 2007-2013.

Accordingly to CSF provisions, the Andalusian ROP and the different NOPs determined the concrete priorities and fields of intervention to be supported by ERDF programmes. Eligibility conditions and project selection criteria, as well as annual funding allocations are introduced in the budgets of the beneficiary bodies (generally public bodies). This procedure facilitates a tight coordination and complementarity between domestic and ERDF funding. In Andalucía ERDF funding used to be matched with the Spanish fund for supporting investment in less developed regions (Inter-territorial Compensation Fund, FCI). At an implementation level, coordination between investments from European funds and national funds are facilitated through the budgetary procedures ruling project selection criteria and public spending.

### **5.2.1 Complementarity between ERDF-funded programmes**

As previously commented in chapter 3, the CSFs of the different programming periods are structured around a major ERDF Regional Operational Programme (ROP), focusing on the territory of the region, and in which Andalucía's development requirements are dealt with through investments from the regional and central governments based on the different spheres of responsibility. In addition, a number of national operational programmes (NOPs) are underway in Andalucía from the central government for the Objective 1 (convergence) regions in Spain, focusing on specific areas.

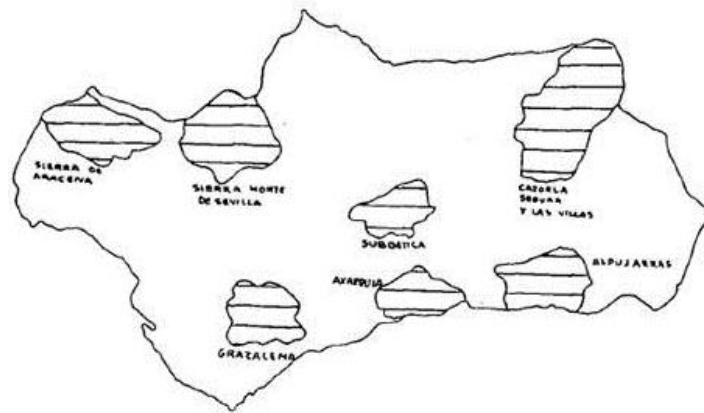
The specific nature of the national programmes has considerably helped the complementarities and synergies with the regional programme in the different programming periods. In the first programming periods, the NOPs were responsible for infrastructure and local development needs in small and medium sized municipalities, as well as for environmental issues and water infrastructure. The remaining regional development needs dealt with by the NOPs are adjustments



in the structure and policies of enterprises and fundamentally, in research and technological development. Despite the apparent successes, there is scope for improving coherence between R&D measures in national and regional operational programs such as in respect to investment in infrastructure and technological equipment in the regions (EC, DG Regional Policy, 2007), as well as in the Technological Fund NOP adapting projects for technological industrial development to suitable conditions for convergence regions.

The coordination of ERDF funded programmes and other EU funds is mainly carried out at the planning level within the CSF. Eligibility conditions set for ERDF and ESF funding, facilitates the allocation of separate priorities to the relevant fund. However, in some fields like vocational training, the ERDF and ESF join forces to obtain a complete result for example, the ERDF supports the construction of schools and premises, whilst the ESF finances the courses.

**Map 11: Local group areas in LEADER I (1991-1994)**



Source: Caro de la Barrera (1995).

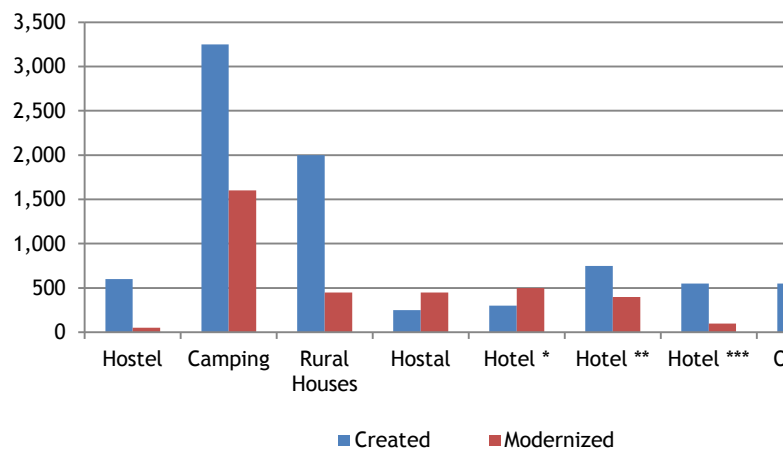
Interesting synergies can be found in the field of rural tourism in the coordinated use of different EU and national types of funding including the ERDF, the Guidance Section of the European Agriculture Guarantee and Guidance Fund (EAGGF) and the Regional Integrated Programme for Rural Tourism Development (RIPRTD). Many of the 'Tourist Village' projects were financed with ERDF and also invested in environment, culture and public works. Most of these interventions were planned in line with the development needs of the entire area. For example, in the project in the tourist town of Cazorla, which involved the construction of a bridge, many of the investments in roads (variants in villages) were linked to rural tourism demand and promotion. Consequently, the local tourism product was facilitated by the EAGGF through the LEADER Community Initiative. Map 11 illustrates the local group areas defined in LEADER programmes that broadly coincide with the areas selected for the Tourist Villages projects. The investments made by the RIPRTD, some of which were co-funded with the ERDF, were complemented with EAGGF funding for rural tourism measures mainly aimed at developing the supply of tourist accommodation and services, through its LEADER programme whereby almost 60 percent of LEADER I funding (40 percent in LEADER II) was devoted to creating tourist accommodation capacity.

Further significant synergies can be found between the ERDF and the EAGGF. An interesting example is the Forest Plan in Andalucía, where the ERDF has financed water infrastructure, erosion protection, infrastructure and fire prevention equipment amongst others, whilst other measures of forestry and forest management were funded with former EAGGF Guidance. The synergies between

the ERDF and the EAGGF have also been exploited in the fields of irrigation improvement and flood risk prevention.

There have been important synergies between the ERDF and the ESF. An attempt has been made to compensate for the deficiencies in traditional entrepreneurship in Andalucía and the weaknesses of its business structure by direct business development (financial instruments, industrial land and support services) financed by the ERDF and by training and development activities to encourage an entrepreneurial culture amongst executives, entrepreneurs, workers and the general population financed by the ESF (access to consulting and specialised courses, vocational and occupational workshops, etc.). In the field of R&D and innovation, similar actions were taken: the ERDF funded the infrastructure and equipment of educational and research centres, whilst the ESF funded courses for occupational training and scholarships for PhD research students.

**Graph 9: Types of accommodation created and consolidated**



Source: Leader II Report, Regional Government of Andalucía.

## **6. ASSESSMENT OF ACHIEVEMENTS AGAINST OBJECTIVES AND NEEDS (EFFECTIVENESS AND UTILITY)**

### **6.1 Overall contribution of ERDF programmes to regional development against programme objectives (effectiveness)**

All the Andalusian development programmes have shared the common goal of catching up with the EU standards. The main aim was to generate a process of sustainable growth that would allow for the increase in the welfare of the Andalusian people.

The first programme periods, 1989-1993 and 1994-1999, emphasised objectives aimed at overcoming the backwardness of the region, achieving the diversification and modernisation of the production system, and the promotion of entrepreneurship and investment. The ‘unlocking’ and improvement of the internal territorial connectivity, together with the development of environmental infrastructure for water supply and purification, were configured as basic components of the strategy in order to overcome obstacles to regional development.

The main goals in the 2000-2006 and 2007-2013 programmes remained the convergence with other EU regions and the strengthening of economic and social cohesion. To achieve these goals, it is necessary to improve the capability to generate value in the socio-economic system of Andalucía and to ensure the fair distribution of the results of that progress amongst the population and territory. Consequently, the following intermediate targets were established in 2000-2006: the creation and dissemination of companies’ intangible capital, an increase in human capital and technology, the full incorporation of an IT society in Andalucía, and a more efficient territorial model (efficiency in the urbanisation model, territorial cohesion, connectivity, environmental externalities).

In the current 2007-2013 programme, the following intermediate objective targets have been formulated in the framework of the new competitiveness strategy for Andalucía (ECA): (i) The promotion of research, technological development and innovation, (ii) the encouragement of business creation and of their survival and competitiveness, particularly for the most innovative, (iii) the conservation and protection of natural resources and the sustainable use of water, (iv) the expansion and improvement of transport infrastructure, (v) a balanced territorial system and the development of cities and towns in Andalucía and, finally, (vi) an increase in the provision and access to social services.

Regarding the effectiveness in achieving the general objective of convergence with the EU, the comparative development gap with the EU15 was reduced by 7.2 percentage points between 1989 and 2008 (with the Andalusian GDP rising from 47.3 percent to 54.5 percent of the EU15 average). Nevertheless, the outbreak of the financial crisis and the current economic downturn are causing a decline in this process. It should be noted that the convergence process was carried out with a much higher rate of population growth than in most other Spanish and European regions (EU15).

ERDF programmes, mobilising over 1.5 percent of GDP in most Andalusian programme periods, have had a relevant influence on regional economic growth and convergence. An adaptation of the macro-econometric model HERMIN-Spain to the Andalusian economy allows an analysis of the effect of EU aid on GDP. The effects of demand (Keynesian) are estimated at 2.7 percent and permanent effects on supply, due to the development of sustainable productive externalities, are approximately 1.0 percent. The full amount of EU financial aid raised the real GDP of Andalucía by

an average of 3.7 percent or more<sup>25</sup> versus the baseline scenario (without EU support) (Sosvilla and García, 2009). Similar findings were obtained in the study by Herce, Avilés *et al.* (2004), which also distinguishes the effects of EU aid by types of action. It is estimated that the effects stemming from investment in infrastructure, in line with its volume, exceeded the equally significant effects from investment in productive capital of companies and human capital formation in the 1988-2006 period. The opinions of experts and stakeholders in the online survey support this assessment, clearly acknowledging the significance of ERDF programme contributions to the economic progress of Andalucía.

The unemployment rate in Andalucía is in line with fluctuations associated with the economic cycle in Spain. Following the decline of unemployment in the second half of the 1980s to 27 percent in 1989, unemployment rose again with the crises of the early 1990s, reaching a rate of 33 percent in 1993. The expansion that began in the mid-1990s led to a reduction in the unemployment rate to 12.7 percent in 2006. This consistent decline in unemployment rates was unprecedented in previous periods, in which the economic growth in Andalucía was not sufficiently oriented towards job creation. From 2008 onwards, the current crisis has had devastating effects in terms of job losses, resulting in an increase in unemployment to over 30 percent.

ERDF programmes have had a positive effect on job creation, especially from the mid-1990s to the outbreak of the current crisis in 2007. Thus, according to estimates, the total effects of the investments in 2000-2006 generated an average reduction in the unemployment rate of 1.17 percentage points over the base scenario (with no aid). The unemployment rate of the regional economy would have registered a cumulative decline of 8.35 percent annually between 1999 and 2006, compared to a reduction of 7.54 percent in the absence of European aid (Marchante and Sánchez, 2005). In this respect, the experts, stakeholders and beneficiaries surveyed online considered job creation to be a positive achievement associated with ERDF programmes in Andalucía.

Overall, a positive assessment can be made regarding the effectiveness of the implemented actions, taking the relationship between the pursued aims and the obtained outputs and results into account. This assessment is supported by the findings of the online survey, which favourably assesses the effectiveness and real impact of undertaken actions. 62 percent of participants positively assessed the overall effectiveness of ERDF programmes from 1989 up to 2010. In a similar manner, the separate programming periods were all deemed to be positive, with the percentages of positive answers ranging from 68 percent (2007-2013) to 81 percent (1994-1999).

Despite the lack of quantified objectives at an operational level for the 1989-1993 programmes, there are sufficient sources of information evidencing the many achievements of the projects undertaken in the period. These include a detailed report by DG for Planning and European Funds (Junta Andalucía, 1989), the physical nature of most outputs and the testimony of experts which, together with statistical data, support a positive assessment. In this period, the main priorities were improving territorial connectivity, with investments made in transport infrastructure, and environmental actions related to water infrastructure.

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<sup>25</sup> The effect of EU aid on real GDP of Andalucía shows an increasing pattern over the programme periods (2.06 percent in 1989-1993 and 3.46 percent in 1994-1999 to 4.46 percent in 2000-2006, and an estimated 4.01 percent for the current 2007-2013 period).

**Table 17: Objectives and achievements in the different programming periods<sup>26</sup>**

Prog.	Aggregate objectives / targets	Output	Achievements
89 - 93	Convergence GDPpc and employment		1% convergence Spain (lost in the crisis 1993) 48.8% GDP per capita EU15 in 1993 Increased unemployment (33%)
	Accessibility and connectivity objectives	Train tracks (500 km) Motorways (250 km)	Δ Capital in Railway 89-93: 35.0% Δ Capital in Roads 89-93: 61.3%
	Environmental protection	Sanitation in the cities of Almería, Huelva and Málaga	More than 270,000 inhabitants benefiting Δ Capital in Hydro 89-93: 23.5%
94 - 99	Convergence GDP and employment		0.8 pp, 49.6% GDPpc EU15 Unemployment reduction (26%) 386,800 increase of employed population
	Accessibility and connectivity objectives	Roads/highways 1,508 km (including A92) 43,007 jobs in construction	Δ Capital in Roads 94-99: 18.7% Reduction of travel time (49%) 40,000 vehicles/day average intensity of traffic 31.3% reduction in casualties (injured and dead )
	Water supply, water treatment plant and environmental protection	743 km of supply networks and 1000 km of drainage networks 1,594 ha reforested	600,000 beneficiary people by water supply and sanitation Δ Treated wastewater 94-99: 20% Δ Capital in Hydro 94-99: 16.2%
	Mandatory secondary education	300,000 students secondary education 103 new schools built	91-97 enrolment rate in secondary ed. from 67% to 78% 91-97 enrolment rate in higher ed. from 19% to 29%
00 - 06	Convergence GDPpc and employment		4.3 pp, 53.9% GDPpc EU15 Unemployment reduction to 13%
	Accessibility and territorial connectivity	1,843 km of highways/roads new/improved 182 km of new railway lines	Traffic increases (121,153 vehicles/day average intensity of traffic) travel time saved (7 million hours/year) Δ Capital in Roads: 23.7%, completing motorway network Δ Capital in Railway 00-06: 56.6%
	Improvement of environmental conditions	1,809 km new or improved supply network 116,034 ha protected/reforested areas	3,7 million people beneficiary of sanitation and water treatment, 47.3% of Andalucía population in 2006 Δ Treated wastewater 00-06: 7% Δ Hydrological Capital 00-06: 4.2%
	Competitiveness Structural adjustment	1,332 Projects implemented 674 Projects (reg. incentives) 22,844 benefiting companies 1,805 SMEs created (0,8% of total SMEs)	Δ Private Capital 00-06: 24.6% Industrial Private Investment: 12.9% of PFCF Δ 55% companies with more than 50 employees Job creation 1.6% of employed population
	Ambitious objectives in RTDI Promote regional innovation system	19,181 Projects RDI 2,109 Investigation groups 48 Renovated centres 1,031 Equipment	Δ Capital in R&D 00-06: 69.3% 49.6% more scientific documents published Patents: 281 in technological transfer + 800 in RTD projects GERD from 0.65% to 0.89% between 2000-2006 Business RTDI from 0.21% to 0.30% of GDP between 00-06

<sup>26</sup> Δ - Increase of; PFCF - Private Fixed Capital Formation; GERD - Gross Domestic Expenditure on RD; PFC - Private Fixed Capital during the programming period; Δ Capital- Increase amount of Capital during the programming period.

**Table 18: Objectives and achievements in the different programming periods (Continued)**

Prog.	Aggregate objectives / targets	Output	Achievements
07 - 13	Convergence GDPpc and employment		0.6 pp, 54.5% GDPpc EU15 in 2008 Increased unemployment (over 30% in 2011)
	Ambitious environmental objectives Nature conservation biodiversity	92 km of sanitation networks 298 km of supply networks 92 sanitation networks created or improved 13,908 ha Reforested area or improved	1,675 million inhabitants benefited Δ Treated wastewater 07-10: 28% 2,575,026 Additional population served (water treatment)
	Business development	Financial instruments (JEREMIE fund)	Easy access for SMEs to capital and finance: 45 projects approved with over €300 m of induced private investment
	Structural adjustment	Enterprise support and investment grants (14,677 beneficiary companies representing 6.5% of total companies in 2011)	19,727 job creation (0.7% of total employed in 2011). €1,593 m of induced private investment.
	Fostering Regional Innovation Systems and knowledge transfer	84 RTDI benefited centres 419 RTDI projects in collaboration with business and research centres	GERD from 1.03% to 1.2% between 2008-2010 Business RTDI from 0.35% to 0.43% of GDP between 08-10
	Consolidation / Quality Transport	1,563 km of new/ renovated roads	6.6% of road network

In the 1994-1999 period, the ambitious goals set in transport infrastructure achieved an increase in accessibility and considerably reinforced capital formation in railways and roads. Wider targets than in the previous period were fixed in the area of environment, particularly regarding water infrastructure, and a considerable area was reforested. Achievements focused on increasing hydrological capital and the volume of treated wastewater. The modest targets for business competitiveness resulted in amounts of induced investment of 0.9 percent of private fixed capital formation in the period.

In the 2000-2006 programming period, entrepreneurial policy and structural adjustment were strengthened. The objectives in gross number of jobs created and beneficiary companies increased significantly from previous periods and reached 1.8 percent of the number of employees in the period, whereas induced private investment reached 6.8 percent of private fixed capital formation in the period.

In spite of the support given to enterprises and private fixed capital formation, the goal of diversifying the productive system of the region through the reinforcement of the industrial base remains out of reach and the share of industry (except for energy and construction) in regional GVA and employment continues to fall from 11 percent in 1989 to 9 percent in 2007 despite the rapid growth in the 2000s.

Ambitious targets in terms of innovation, RTDI and information society were also set. The programme objectives included a large number of research projects and equipment for research groups. These projects achieved increases in scientific and technical publications, patents and a sizable participation in the FP7. Objectives aimed at reinforcing the regional innovation system achieved an important increase in RTDI capital in the region. Although technological transfer is an important need in Andalucía, despite the achievement of 281 patents in cooperation with

companies, significant improvements in the private sector performance are more difficult to obtain. Moreover, a large part of recorded private sector achievements stemmed from technological parks and centres which were created and reinforced by RTDI policy measures.

Similarly, the targets set for the environment, in the more traditional line of environmental infrastructure, as well as the commitment to the conservation of nature, were met with achievements in the increase in wastewater treated and in hydrological capital. The objectives in the field of transport infrastructure were also achieved.

The strategic options in the current programme period are reflected in the importance of the goals set for competitiveness (high figures for job creation and beneficiary companies) and, most prominently, for innovation, with a high number of collaborative projects between companies and research centres and with significant objectives regarding support for RDI. Conservation objectives and nature protection are also considered ambitious. In the area of consolidation and improvement of transport networks, important goals remain, and the role of social infrastructure is strengthened.

Although the strategic options in the programme for 2007-2013 are clear, it is difficult to measure the effectiveness in achieving programme objectives. This is not only due to the fact that the programme is still running, but also due to the circumstances that affect it. Firstly, its implementation was delayed and overlapped with the previous 2000-2006 programme (which certified expenditure until 2009), and secondly, the consequences of the depression and the poor prospects for the Spanish and Andalusian economies introduce serious uncertainties about how the programme will evolve.

The degree of effectiveness in achieving objectives in various thematic areas of action is discussed next. Table 16 presents the achievements in relation to the intensity in the pursuit of objectives in the different areas.

The central core of priorities in the development strategy of Andalucía - transport infrastructure - was considered a very high priority from the early stages, and this priority was retained until 2007-2013. In this last programme period, once the endowment gap was resolved with substantial investment, it was no longer such a major priority. The stock of the achievements in these areas in relation to the objectives and expected results is considered positive.

In a similar way, environmental sustainability (mainly related to water supply and treatment along with reforestation) has been considered a very high priority since the early stages. However, in this case, the priority remains very high in the 2007-2013 period due to the reorientation and extension of these objectives from water infrastructure to the conservation and protection of nature. The assessment regarding the balance between the objectives and the results is also considered positive. However, in the environmental field, the problems regarding the purification and water treatment pose an exception to this positive assessment.

In the early stages of programming no ambitious targets in the field of enterprise policy and structural adjustment were set. The needs were very high in these areas, but prioritising limited the objectives to a small number of initiatives. In any case, the achievements were in line with the expectations and the resources allocated in this areas. From 2000-2006, business competitiveness

was reinforced as a strategic priority. In this period, the actual achievements were in line with the goals of the objectives in the field of enterprise policy, but underperformed in structural adjustment. This assessment is principally based on the difficulties encountered in expanding the industrial base of the economy despite the achievements related to the support of investment in the installation, expansion and modernisation of industry and production processes and the consolidation and promotion of tourism.

With regard to innovation, in spite of the investment in universities and research equipment during the first programme periods, the achievements do not measure up to the objectives, particularly with respect to spreading knowledge to productive sectors. In 2000-2006, the evolution of the strategy towards competitiveness and innovation priorities reflected a higher ambition to pursue these goals. This new approach was also characterised by greater support for research projects and facilities and the strengthening of mechanisms for technology transfer, particularly fostering the network of technology centres and technology parks in Andalucía

**Table 19: Achievements compared with imputed objectives for eight thematic axes**

Thematic area	1989-1993		1994-1999		2000-2006		2007-2013	
	Imputed objectives	Achievements	Imputed objectives	Achievements	Imputed objectives	Achievements	Imputed objectives	Achievements
Enterprise	=	3	=	3	+	3	++	Ongoing
Structural adjustment	=	3	=	3	++	2	++	Ongoing
Innovation	=	2	=	2	++	4	++	Ongoing
Environmental sustainability	++	5	++	5	++	4	++	Ongoing
Labour market	=	2	+	3	=	4	=	Ongoing
Social cohesion	=	3	=	3	=	3	=	Ongoing
Spatial cohesion	+	4	+	4	+	4	=	Ongoing
Infrastructure	++	5	++	5	++	5	+	Ongoing

Objectives scale, start of period

- ++ Very high effort, this axis is a central aspect of the regional development strategy
- + High effort, this axis is an important element in the regional development strategy
- = Average effort, this axis is included in the regional development strategy but is not particularly important
- Low effort: this axis is only marginally considered in the regional development strategy
- No effort at all on this axis

Achievements scale, end of period with respect to beginning of period

- 5 Very high achievement, the results for this axis are considerably above expectations given the effort put in it and ex-ante conditions
- 4 High achievement, the results for this axis are above expectations given the effort put in it and ex-ante conditions
- 3 Average achievement, the results for this axis are those which could be expected given the effort put in it and ex-ante conditions
- 2 Negative achievement, the results for this axis are below expectations given the effort put in it and ex-ante conditions
- 1 Very negative achievement, the results for this axis are considerably below expectations or even nil

The labour market area of the ERDF focuses primarily on infrastructure and equipment, as well as education and occupational training. This area was not a main priority in the 1989-1993 period. However, the balance between the intensity of the objectives and the actual achievements seems insufficient, especially when the negative behaviour of unemployment in this period is taken into account. Nevertheless, in the next period, 1994-1999, important efforts were made to implement



compulsory secondary education and the assessment of effectiveness is considered balanced. In 2000-2006, the achievements in improving schools linked to vocational and occupational education and higher education shows a positive final balance in a context of strong job creation.

The effectiveness in the area of social welfare infrastructure (health, sports, etc.) is considered to be good in the first period. The priority of these actions increased in later periods, specifically in the 2000-2006 period, when assessment is positive in terms of achievements in relation to groups affected by social problems and the development of other social services and infrastructure for sports and leisure.

## **6.2 Overall contribution of ERDF programmes to regional development compared to regional needs and problems (utility)**

Over the past few decades, ERDF programmes have significantly contributed to addressing the most important needs and obstacles to regional development in Andalucía. The positive impacts of utility are now presented for each of the thematic areas.

### *Transport infrastructure and spatial cohesion*

In the mid-1980s, Andalucía was an isolated and territorially disjointed region due to a severe lack of transport infrastructure. Following 20 years of intense investment policy, it now has transport infrastructure comparable to that of many advanced European countries. As noted in Steer Davies Gleave's evaluation (2008), 'the infrastructure barriers were broken and the Andalusian economy could better integrate to the European markets'.

These investments could not have been undertaken in such a short period of time without the substantial contribution of ERDF programmes. The quantitative and qualitative indicators of achievements in successive programme periods (see section on achievements in Chapter 5) provide a clear idea of the significance of the outputs.

From an economic perspective, the interventions aimed at providing improved transport infrastructure have reduced the peripheral character of Andalucía and have allowed for the complete integration of the regional market. Andalucía's peripheral position has restricted returns from human capital, discouraging investment in education (Redding and Schott, 2003; López-Rodríguez *et al.*, 2007). Accordingly, a distortion in the comparative wages of skilled and unskilled workers was induced (decreasing the relative wage of skilled workers), leading to a decrease in the number of highly qualified workers. Deficiencies in skilled human capital in Andalucía were a major constraint on the development of economic activities oriented towards innovation and technology. The improvements in accessibility were able to contribute to an increase in market potential (especially in the emerging markets of various products and services) and, consequently, stimulate efforts to increase competitiveness, so promoting economic growth.

The development of transport infrastructure has also been a key factor in the intense process of the social modernisation of Andalucía over the past few decades. It facilitated, for example, the access of the population in rural areas to university education and high-level professional training, contributing to sociological changes. The increase in the accessibility of the rural areas also led to the economic diversification of small towns from a model focused almost exclusively on agriculture to one that gave greater importance to services, especially tourism. These changes in the

production system fostered the social and cultural transformation of Andalucía, favouring, for example, the increase in the participation of women in the labour market. Andalusian women experienced limited access to the labour market until recent times due to a lack of employment opportunities and high unemployment rates. The female employment rate has more than doubled over the last few decades, rising from 18.7 percent in 1989 to 49.7 percent in 2007, just before the start of the economic crisis.

Beyond these broader impacts, the direct use of transport infrastructure has translated into substantial reductions in travelling times and greater road safety, increasing social utility and reducing production costs. Regarding travelling times, the progress made was very expressively synthesised by one of the experts interviewed, who noted that the large region of Andalucía has been 'reduced by half', in reference to the shorter travel times. With regard to road safety, the number of casualties in road accidents dropped by 85 percent between 1988 and 2010 (from 4.15 to 0.61 deaths per 10,000 vehicles). It is difficult to estimate the importance of improvements in the road infrastructure for this achievement, as better car design and changes in driving legislation also contributed. However, the common perception is that the influence of infrastructure has been extremely relevant. Several of the experts and beneficiaries interviewed pointed out that, at the beginning of the 1980s, 'trips from Seville to Almería were hazardous and travellers put their lives at risk'.

Railway improvements have also achieved positive results, associated with the introduction of the high-speed (AVE) Madrid-Seville and Madrid-Málaga trains as well as the development of the transversal internal connections and improved service throughout the railway system.

The demand for the high-speed Madrid-Seville and Madrid-Málaga lines has been high, reaching 3.4 and 2 million passengers respectively in 2008.<sup>27</sup> To assess the utility of high-speed trains for regional development in Andalucía, the following three important aspects must be taken into account.

Firstly, the fact that the European-gauge tracks for the AVE and high-speed trains can be used in conjunction with conventional lines is extremely important for the railway system, as the effects of both types of lines are different. Thus, the trains of the AVANT Seville-Córdoba-Málaga line complete the route in a convenient time of two hours connecting these three most populated cities in Andalucía. Passenger numbers reached 0.95 million in 2008, with the number increasing to one million in 2010 despite the serious effects of the crisis and the economic recession. According to data obtained from the railway observatory, a large proportion of passengers are travelling for business purposes.

Secondly, the AVE increased the competition between different modes of transport, which has had effects on aviation and road transport in a competitive environment (traffic deviation). High-speed trains are generally less expensive and are more energy efficient compared to air travel, which is the only competitive alternative in terms of travel time between Madrid and the Andalusian cities of Seville and Málaga. The development of the high-speed railway has also led to a reduction in the dependency on car transport, especially between the Andalusian most populated cities.

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<sup>27</sup>The demand for the high-speed train AVE has also been affected by the current economic crisis, and the number of passengers in 2010 dropped from 3.0 to 1.8 million passengers in the Madrid-Seville and Madrid-Málaga routes.

Lastly, the benefits of fast and efficient connections strengthen the competitiveness of cities, particularly regarding the emerging market of business services (consulting services, open innovation, commercial relations, etc.) as well as leisure and cultural services associated with tourism. The high-speed connections induce changes and adaptation processes to gain competitiveness by accessing larger and more dynamic markets. However, communication channels operate in both directions and, therefore, may also cause displacement of local business and increase competitive pressure from large centres.

It is debatable whether the investment in high-speed connections was the best option in terms of social profitability or if there could have been other more efficient allocations for these resources (De Rus and Inglada, 1993; Ollero Sanchez *et al.*, 2011). In this respect, it could be argued that more resources could have been used in other ways, for instance to tackle the remaining needs in intermodal connectivity or in the urban transport system, which is still dominated by car transport (Gleave, 2008).

However, as has been pointed out, improvements in external accessibility were achieved due to AVE lines (also associated with improvements in internal connectivity). From the current perspective, following more than two decades of operation, the assessment seems positive in the case of the AVE Seville-Madrid, which was the first high-speed line functioning in Spain. However, doubts arise in the case of the AVE Málaga-Madrid that started operating in 2007, as the demand is currently below the initial estimates. This can be explained by temporary factors (the economic crisis) but also by structural reasons - the fact that Málaga's tourism is fundamentally foreign.

### *Environmental infrastructure*

The most important needs in the field of environment to be covered in the first programme periods were the deficits regarding water supply, treatment and sanitation. The situation of Andalucía in drought-ridden Spain, together with infrastructure deficiencies, posed a threat to the security of the water supply, especially in times of drought (in some cases, water supply restrictions even affected cities such as Seville or Málaga). The actions taken in water supply, treatment and sanitation have allowed for the improvement in supply conditions and have substantially increased the volume of treated wastewater (rising by 42 percent, from 0.156 to 0.222 m<sup>3</sup>/inhabitant/day, in the decade 1996-2006) and the proportion of the population benefiting (increasing from 28 percent of the equivalent population in 1992 to 74 percent in 2006).

Nevertheless, important problems remain regarding purification plants and water treatment. On the one hand, more purification plants are needed in order to reach the standards established by the EU directive on water treatment. However, the treatment capacity of some of the new plants built by the regional government with the support of the ERDF may not be optimally employed due to the difficulties faced by some small municipalities in providing technical staff and the funding necessary for this operation (Section 6.3 contains further comment on this problem).

Once the most urgent needs regarding water infrastructure were satisfied, the actions in the field of protection and conservation of the environment were reinforced. As a result, the area under the legal protection regime integrated in the Network of Protected Natural Spaces of Andalucía (RENPA) covers almost 20 percent of the Andalusian territory. Moreover, the area protected under the category of Sites of Community Importance (marine and terrestrial) represented 30 percent of the Andalusian territory in 2010.

These investments and environmental concerns are encouraging the emergence of a new sector of economic activity. According to the Observatory of Sustainability in Spain (OSE), 'green employment'<sup>28</sup> represented 3.2 percent of the employed population of Andalucía in 2010, more than doubling in the decade of 2000-2010 (from 42,918 to 91,517 jobs). Moreover, the preservation of the natural wealth of Andalucía, both inland and on the coast, has had a beneficial impact on tourism, which is one of the main economic sectors of Andalucía.

### *Entrepreneurial culture and entrepreneurial dynamism*

Deficiencies in entrepreneurial culture and entrepreneurial dynamism (birth, survival and expansion) are another major structural drawback in Andalucía. The different actions developed within ERDF programmes in the field of enterprise policy, generally through the regional development agency IDEA, have contributed to certain observed improvements, mainly in the last decade. However, entrepreneurial spirit has been historically poor in Andalucía, and significant socio-cultural obstacles make it difficult to obtain rapid and substantial results in this field.

As part of the growth in the 2000s, the rate of entrepreneurial activity (TEA) reached a relatively good national position according to the Global Entrepreneurship Monitor Andalucía 2009 (Ruiz Navarro *et al.*, 2010). In the 2000-2007 period, the total number of businesses increased in Andalucía and Spain with annual growth rates above 5.2 percent and 4.2 percent respectively. However, most of these businesses were micro-enterprises and a significant number were oriented to the construction sector. The current crisis is causing a reduction in the number of registered companies with annual rates of -1.9 percent and -1.7 percent in the 2007-2010 period in Andalucía and Spain respectively.

A major structural drawback of the Andalusian economy is the small average size of its businesses, leading to the problem of fragmentation. The Andalusian productive system is therefore characterised by a marked predominance of micro-enterprises and the comparatively low participation of SMEs and large enterprises. In this respect, a positive trend can be observed in the form of a relative decrease in the proportion of firms without employees in favour of micro-enterprises (1 to 9 employees). However, the proportion of SMEs and large enterprises varies insubstantially.

The improvements in business demography and entrepreneurial culture have had a certain positive impact on employment and wealth creation. Furthermore, the strengthening of the population of SMEs in Andalucía is leading to achievements in R&D, innovation and internationalisation. The impact of the ERDF on innovation is discussed in the following section. With respect to the internationalisation of the regional economy, a trend of a steady increase in the foreign trade rate has been observed, moving from 18.9 percent in 1990 to 35.2 percent of GDP in 2011.<sup>29</sup>

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<sup>28</sup> Included in this category are environmental goods and services, organic farming, ecotourism, RTDI activities related to the environment, education, training, environmental awareness activities, and the management of environmental policies by public bodies.

<sup>29</sup> The internationalisation of trade-related services should be added to this data, referring only to the trade of goods, which is especially important in an economy such as Andalucía with its tourism specialisation.

## *Innovation*

Technological backwardness and an insufficient capacity for innovation within enterprises have been other major weaknesses of the regional economy associated with deficiencies in human and organisational capital.

Public research centres and the university system were supported by the ERDF through the co-financing of different projects. In this respect, the indicators show a substantial increase in the number of projects and publications produced by Andalusian research groups, along with an increase in patent applications from Andalusian institutions and companies.

Innovation policy in Andalucía, with the aid of ERDF programmes, has strived to support both scientific and economic development in the region through the practical application of new knowledge and the introduction or upgrading of products and processes. In this respect, the strong asymmetry in favour of the public sector in the field of RDI, which is a characteristic of the regional innovation system, is diminishing. RTDI expenditure in companies has risen significantly from 0.16 percent of the GDP in 1996 to 0.43 percent in 2010.

Despite these achievements, the RTDI indicators are still at comparatively low levels in the Spanish and EU context, and a strong asymmetry remains in favour of the public sector. The difficulties in reaching high levels of RTDI in the business sector are in part related to Andalucía's own productive specialisation, the overwhelming proportion of micro- and small businesses, as well as the peripheral character of the region.

The provision of business sites and consequently, the provision of business services has been a characteristic of the intervention in Andalucía and other regions in Spain, providing some support for business innovation and development. Recently, the use of parks and technology centres to promote business innovation has received a positive evaluation (EC, DG Regional Policy, 2011). Similarly, Barge-Gil *et al.* (2011) have provided some statistical evidence supporting the fact that technology parks in Spain have had a positive effect on the productivity, sales and profitability of SMEs located in the environment (the so-called "park effect").

The construction of business and science parks equipped with technology centres, specialised services and facilities and infrastructure for business can facilitate the creation and relocation of businesses and encourage the exploitation of external economies, reducing costs and spreading knowledge, ideas and entrepreneurial attitudes. In the case of Andalucía, there was also the intention to create a seal of innovation and business excellence and a favourable business micro-environment for the incubation and development of companies with high growth potential. In Andalucía, these interventions have yielded some successful results with interesting effects on job creation and induced investment in cases such as the Andalucía Technology Park (PTA) in Málaga, the Science and Technology Park Cartuja 93 and the Andalusian Aerospace Technology Park (Aerópolis), both of which are in Seville, along with questionable results in other cases. Similarly, the ambitious commitment to developing a wide network of technology centres, inside as well as outside the parks, has yielded some successful cases, for example the Centre for Advanced Aerospace Technologies (CATEC), the Andalucía Centre of Innovation, Information and Communication Technologies (CITIC) and the Andalusian Stone Technology Centre (CTAP). However, in the case of a large number of centres that were more recently created and are

oriented to sectors with a lower demand or ‘pull’ for technological services, a significant impact on the innovation processes in local productive systems has yet to be seen.

In this sense, it should be noted that the ‘push’ effects pursued for business innovation are slow and difficult to implement. As noted previously, the characteristics of the Andalusian productive structure hinder rapid progress in this field. Thus, it would be expected that the most important effects of these actions will occur in the medium-to-long term (as shown by the most successful experiences in the region dating back to the 1989-1993 period). However, the current economic crisis and budgetary constraints in the public sector are major threats to the consolidation and sustainability of the technology infrastructure created in recent years. The technological centres were created as foundations, and public institutions as well as private companies can be found among their members. However, they were basically planned following a top-down approach and remain dependent on public funds. In this respect, a more substantial involvement of private sector operators in the design and functioning of these centres would arguably have improved the effectiveness of interventions, leading to greater market expansion and faster consolidation processes.

### *Structural adjustment and tourism*

The lack of knowledge, know-how and business culture are among the factors that hindered the diversification, innovation and penetration of new technologies and high value-added sectors in Andalucía. The regional economy has experienced a certain positive structural change in the last two decades, with a slight process of diversification<sup>30</sup> and some emerging sectors (aeronautics, business services and renewable energy).

Nevertheless, manufacturing sectors were generally unable to maintain growth in the Andalusian economy as a whole, and the relative share of industry (except construction) in regional GDP has declined. This fact is also pointed out as a drawback of structural adjustment according to the results of the online survey completed by experts and beneficiaries (mainly companies). Of those surveyed, 30.8 percent considered that the ERDF had a modest or no effect on productive change towards high-growth clusters. Furthermore, 34.3 percent of the interviewees did not acknowledge any effect or merely a modest effect on industrial growth.

Tourism had been one of the most powerful drivers of economic revitalisation and reduction of economic disparities between different areas in the region since the late 1980s. Of those interviewed, 58 percent considered that the ERDF has contributed significantly to the growth of tourism and creative industries. From the earliest periods, the actions implemented favoured tourism diversification and the enhancement of inland tourism, taking advantage of the unique natural environment and landscape and rich historical and cultural heritage. A wide range of activities oriented to the preservation, restoration and enhancement of the natural, historic, artistic and cultural endowments were developed. ‘Tourist villages’ projects, which are described in Chapter 5, combined with improvements in accessibility, contribute to the extension of the tourist activity to inland rural areas (foreign tourism, but also a significant proportion of Spanish

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<sup>30</sup> The index of relative specialisation - given by the ratio of the Herfindahl index in the region to the average value of the Herfindahl index across all the regions of the country - shows a decline in the level of specialisation from 1.26 in the 1985-89 period to 1.11 in 2005-10.

tourism). As a result of the actions implemented, the weight of alternative forms of tourism to ‘sun and beach’ is significant today.<sup>31</sup>

According to estimates, Andalucía received a total of 1.9 million rural tourists in 2003, representing 8.8 percent of the total number of tourists. These rural tourists generated €725.30 million in revenue, contributing 5.1 percent to total tourism income (Consejería de Turismo, Comercio y Deporte, 2004). Between 2001 and 2011, according to the Survey on Occupation of Rural Tourism Establishments, the number of annual overnight stay travellers in rural Andalucía nearly tripled, from 180,430 in 2001 to 511,619 overnight stays in 2011.

### *Health and Education*

ERDF programmes have contributed to covering needs related to healthcare and educational services, improving the social infrastructure in both fields in Andalucía.

On the one hand, the expansion and modernisation of the health system over the last few decades, together with other factors, explain the increase in life expectancy in Andalucía. Life expectancy at birth has increased by 5.3 years from 1986 to 2010 for men (77.7 years in 2010), and by 4.7 years for women (83.6 in 2010). Particularly, life expectancy at 65 years old has increased by 2.9 years for men from 1986 to 2010, and by 3.3 years for women over the same period. The ratio of child mortality<sup>32</sup> has also significantly declined from 10.2 deaths per 1,000 in 1986 to 3.8 deaths in 2010. Avoidable mortality has been reduced by 26.8 percent for women and 29.9 percent for men in the 1999-2008 period (Consejería de Salud, 2010). Another indicator of the improved quality of the health system in Andalucía is that the number of transplanted solid organs has increased by three times, from 244 in 1991 to 722 in 2011. Improvements in the field of healthcare have benefited the whole population and have spread throughout the territory, reaching the smaller municipalities.

Furthermore, in the field of education, the schooling rates in Andalucía have risen significantly in the last decades for all ages. For instance, in the case of the population at the age of 17, the schooling rate has increased from 58.6 in the academic year 1991-92 to 72.3 in 2005-06. The investment in secondary education and universities has greatly contributed to improving the educational system and human capital in Andalucía allowing a continuous increase in the proportion of the population with secondary and higher education. The proportion of the population aged between 25 and 34 years old with university-level education in Andalucía has risen to figures above the average of the OECD (Requena y Cantón, 2007). Currently, undergraduate students at the public universities in Andalucía represent approximately four percent of the regional population and 21 percent of all Spanish students (OECD, 2010).

The current weaknesses of the education system in Andalucía, which are still substantial, are connected to high drop-out rates, and the insufficient quality of education and professional training. However, these deficiencies are associated with many organisational and sociological

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<sup>31</sup> Estimates based on the Andalusian Tourism Situation Survey (ECTA) show that 3.43 million tourists visited the interior of Andalucía in 2010, representing 16 percent of total tourist visits to the region (Consejería de Turismo, Comercio y Deporte, 2011). It is also estimated that, for approximately 1 in 4 tourists visiting Andalucía in 2009, visiting monuments was a main motivation for choosing the region (Consejería de Turismo, Comercio y Deporte, 2010).

<sup>32</sup> Number of children who die by the age of five, per 1000 live births per year.

factors and do not primarily depend on investments in infrastructure or other actions within the ERDF framework.

### Overall assessment

Table 20 summarises the relationship between the importance of regional needs and achievements in major programming periods.

**Table 20: Needs and achievements for eight thematic axes**

	1989-1993		1994-1999		2000-2006		2007-2013	
Thematic axis	Needs	Achievements	Needs	Achievements	Needs	Achievements	Needs	Achievements
Enterprise	++	3	++	3	++	3	++	Ongoing
Structural adjustment	++	3	++	3	++	2	++	Ongoing
Innovation	++	2	++	2	++	4	++	Ongoing
Environmental sustainability	++	5	++	5	++	4	++	Ongoing
Labour market	++	2	++	3	++	4	++	Ongoing
Social cohesion	++	3	++	3	+	3	=	Ongoing
Spatial cohesion	++	4	++	4	+	4	=	Ongoing
Infrastructure	++	5	++	5	++	5	=	Ongoing

Needs Scale (evaluation of the region at the start of the period)

- ++ Very high need: the region is highly deprived on this axis
- + High need: the region is somewhat deprived on this axis
- = Average need: the region is around the national mean on this axis
- Low need: the region is above the national mean on this axis
- Very low need: the region is already a European frontrunner on this axis

Achievements scale, end of period with respect to beginning period

- 5 Very high effort, this axis is a central aspect of the regional development strategy
- 4 High effort, this axis is an important element in the regional development strategy
- 3 Average effort, this axis is included in the regional development strategy but not particularly important
- 2 Low effort: this axis is only marginally considered in the regional development strategy
- 1 No effort at all on this axis

In the initial periods, Andalucía's development needs were very high across all thematic axes. There were substantial achievements in 1989-1993 and in 1994-1999 in the areas of infrastructure (mainly transport) and the environment (addressing needs related to external accessibility and water supply, treatment and sanitation). Achievements regarding transport infrastructure were also crucial in improving regional internal connectivity and spatial cohesion. The achievements in these areas were also important in more recent programming periods. As a result of actions implemented over the years, the remaining needs regarding infrastructure and spatial cohesion are assessed as average. In the field of environment, significant needs remain regarding water sanitation.

Labour market needs have remained very high across all programming periods. In this respect, the greatest achievements of ERDF programmes in terms of employment creation were in the period 2000-2006 in the context of the economic expansion. However, the current economic crisis quickly



worsened the labour market situation in Andalucía, with a dramatic increase in the unemployment rate.

Needs related to enterprise, innovation and structural adjustment were addressed more intensively in the more recent programming periods. Though significant achievements were made in the period 2000-2006, the needs in these areas still persist (the achievements in the current period cannot be properly assessed yet). Certain improvements can be observed in the entrepreneurial culture and innovation efforts as a result of actions implemented through ERDF support. The results, in terms of structural adjustment and productive diversification, are least evident. Nevertheless, the main challenges of the regional economy remain as competitiveness and structural change, which are associated with needs in the fields of enterprise and innovation.

## **6.3 Key elements of success and failure**

### **6.3.1 Good practices and successes**

Among the key factors for the success of the ERDF interventions, the framework of planning and programming EU funds and the organisation and management capabilities of the Spanish public administrations should be considered. The central and regional governments collaborated effectively in planning and development programming, whereas the institutional framework of the Structural Funds facilitated strategic planning and action coordination, as well as favouring a process of organisational learning. In this respect, as noted in the evaluation by CADMOS (EC, DG Regional Policy, 1991), the Structural Funds have had positive effects on the rationalisation of the public decision-making process, especially in the field of regional administration.

Strategic planning in Andalucía has taken into account the weaknesses and potential for development in the region, the strategic orientations and funds of EU regional policy, and the central government's forecasts and plans with an impact on the region. This is also the basis of the current Competitiveness Strategy for Andalucía of 2007-2013.

Some other key factors for success related to the organisation and utilisation of the ERDF are:

- Closing the planning-programming-budgeting cycle in Andalucía and in Spain. Once Operational Programmes are approved, the annual allocations in programme documents are incorporated into the budgets of the managing bodies (mostly public entities). In this manner, they can commence the processes of project selection and implementation in accordance with the conditions and priorities established in ERDF programmes.
- The creation of an administration specialised in planning and managing European funds. The general directions of EU funds and planning in the central and regional governments coordinated measures and procedures with sector managers (public works, industry, agriculture, environment, etc.). This form of organisation was decisive, not only in the planning and programme phases, but also in management, implementation and monitoring. Those in charge of funding and planning in regional and central governments maintained a fluid level of contact and dialogue (with regular meetings, 'Economic Forum') to review and discuss the various issues related to planning, implementation and monitoring of ERDF programmes.

- The technical capabilities of the country. Spain had human resources and highly qualified professionals in the fields of management and construction of infrastructure (administrations, schools and bodies of civil engineers, construction companies, etc.). This facilitated the development of major projects and investments and, therefore, made it possible to take advantage of the ERDF financial aid. A side effect, which was to some extent unplanned, was the consolidation of an important sector of engineering and construction companies with an extensive international exposure. This occurred largely at a central level, but on a smaller scale also at a regional level.

### **6.3.2 *Bad practices and failings***

However, the same factors of success mentioned in the above section may also have had other less desirable impacts. As an important consequence, the management of EU funds was predominantly carried out by the public administrations. The central and regional governments and agencies and organisations linked to them were the main protagonists in designing the programmes, as well as in their execution. By contrast, the weight of private bodies (companies, non-profit organisations and other institutional sectors) was and remains extremely modest. At present, the strategic priorities are in the process of diversifying towards competitiveness and innovation. In this context, finding new solutions and actions for a ‘smart specialisation’ may be limited by the excessive weight of public managers in designing measures and projects.

A concrete manifestation of the predominance of public administrations in EU-funded programmes can be seen in the field of national co-financing. Over time, the possibility of private beneficiaries contributing to financing a portion of the eligible costs, which can be subsidised, has no longer been used in ERDF programmes in Andalucía, nor in the rest of the country. Normally, this practice limits the leverage effects of programmes by requiring the availability of a national counterpart in the budgets of government agencies. In times of crisis and need for strong consolidation of public finances, this practice adds additional rigidity. The operational redirection of the ERDF through the budgets of government agencies, which was initially a great advantage in carrying out allocation in their budgets, may well become, paradoxically, a disadvantage. This could have negative effects on the presentation of new initiatives tailored to the needs of businesses and other intermediary institutions. Given the complexity of the economic and social structure of Spain and Andalucía at present, companies, clusters, associations, businesses parks and scientific and technology centres could assume a greater role in the management of funds.

Insufficient participation from the private sector in programme design and implementation has had a direct consequence on the Andalusian experience with the ERDF. The strategy and the interventions were mainly conceived from a supply side perspective and demand analysis did not play a very significant role, so that opportunity costs might have been higher and market expansion lower than desired.

Overall, development policy in Andalucía has been characterised by the prioritisation of transport infrastructure. This was the most efficient strategy, especially in the earlier programme periods when limitations of external accessibility and internal connectivity were the main bottlenecks for regional development, as they hindered access to external markets and the full integration of the regional market. The Andalusian experience has shown that investment in infrastructure can act as a supply-push policy, generating effects on structural change and releasing the endogenous growth potential of isolated and poorly-developed areas.

In designing infrastructure and transport networks, solidarity and spatial inclusion were kept in mind. In some cases, costs are possible in terms of efficiency, and other opportunities with higher rates of return may have been overlooked. However, this line of action has ensured higher territorial and social cohesion in Andalucía.

With regard to the performance in transport infrastructure, major projects undertaken in the first period were a major challenge considering the rugged and rough Andalusian landscape. This factor, together with a certain haste in construction, forced subsequent reforms and repeated renovations in some cases, which resulted in significant building work and extra costs (for example, in the A92, especially the A92 South path towards Almería). In addition, environmental impact was not considered sufficiently in the early programme actions in transport infrastructure. The construction of such a large network and extensive infrastructure articulating the Andalusian territory has created important needs for environmental adaptation, conservation and maintenance with a subsequent budgetary cost.<sup>33</sup>

This aspect points to an important lesson that can be derived from the Andalusian case: the need to provide adequate conditions for future viability and sustainability of investments. A suitable example is the case of water treatment infrastructure where the investment for the construction of these plants was in the remit of the regional government, but the responsibility for the plants was later transferred to the local authorities. The problem arises in some municipalities without the financial capacity to maintain the necessary technical staff and to cover the high cost associated with some chemical and biological treatments. These municipalities opt for simple purification procedures with the final result that some plants are not functioning at their optimal level.

A similar example can be found in connection with some of the new technology centres established through the enterprise and innovation policies. The objective is that these centres provide technological services to business clusters, consolidating a financially viable model without the necessity of significant public support. However, there are several newly established centres that have not yet generated sufficient demand for their services, which is due, among other factors, to the characteristics of entrepreneurs and businesses in Andalucía. Therefore, many centres are still very dependent on public aid in their operations. These unsatisfactory results are explained by deficiencies in the training of entrepreneurs, a lack of a spirit of cooperation, small business size and insufficient corporate financial support, as well as the current scenario of the economic crisis. In addition, the budgetary and financial constraints for public administrations in Spain also pose a threat to centres that are yet to be consolidated and depend highly on public support. Fostering cooperation between the technological centres (even through mergers) could be among the possible strategic options to assure sustainability for some of them.

Amongst others, the interviewed experts frequently pointed out the major problem of escalating audit charges and perceived risk in ERDF procedures. Many managers and project sponsors are concerned about the lengthy procedures, excessive inspections charges and the frequent requests for documentation, which raise management costs substantially and divert a great deal of effort and energy.

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<sup>33</sup> The conservation objective for 2000-06 amounted to 16,000 km of roads and the environmental adaptation assumed an additional 1600 km.

Finally, there may have been some deficiencies regarding the ability of the programmes to adjust to changes in socio-economic needs in general and to the needs of the final beneficiaries in particular. Thus, the experts, beneficiaries and stakeholders who participated in the survey called for design that is more receptive to regional needs. They believe that this can be achieved by using the evidence gathered in the evaluations, greater flexibility in the programmes, and by simplifying the administration of funds to project beneficiaries. The participants in the survey indicated that there has been a decrease in the flexibility of programmes over time.

## 7. CONCLUSIONS

### 7.1 EQ1: *To what extent did the programmes address regional needs and problems over time?*

#### *EQ1a: What were the initial regional needs and problems and what has been their evolution?*

In the late 1980s, Andalucía was one of the poorest regions in Spain with high unemployment levels. The level of education was low and the region lacked efficient transport and environmental infrastructure. These deficiencies have been reduced in the last decades and Andalucía has embraced a convergence process with European standards (GDP pc increased from 59 percent of the EU15 average in 1996 to 66 percent in 2007) and experienced unprecedented employment creation (unemployment decreased from 32 percent in 1993 to 12.7 percent in 2007). However, since 2007 the Andalusian economy has been adversely affected by a serious financial and real estate crisis, and the unemployment rate has again grown to over 30 percent.

In the late 1980s, Andalucía suffered from severe deficiencies in transport and environmental infrastructure. Communication networks with the rest of Spain were poor and the region was deeply disjointed internally. The most important deficits in environmental infrastructure were related to water supply, distribution and purification. Many towns, including Seville's own metropolitan area, experienced supply restrictions in the driest seasons.

Today, a large part of these needs have been met. Andalucía possesses transport infrastructure comparable to those in many regions of the most developed European countries. The main remaining needs in the environmental field are those related to wastewater treatment and purification in small and medium-sized municipalities.

In spite of some interesting industrial developments (agri-food, aeronautical, ITC, renewable energy), the industrial base of the Andalusian economy is still limited, whereby construction, tourism and other services play an important role. The lack of an entrepreneurial culture, the small average business size and the characteristics of the regional economic structure are still important weaknesses of the region, as well as underinvestment in R&D and innovation in the private sector.

Andalucía has a wide range of business parks, technology centres and science and technology parks. R&D investment has increased significantly from 0.6 percent of GDP in 1996 to 1.2 percent in 2010 but the RTDI effort of Andalucía is still below the Spanish average (1.4 percent in 2010). The gap in terms of public R&D is now insignificant, but the transmission of the effects to the private sector is yet to develop. The investment in business R&D was below 0.2 percent of GDP in the 1990s, but it has now doubled, reaching 0.43 percent of GDP. Nonetheless, it remained well below the national average of 0.71 percent in 2010.

The development of infrastructure has also been a key factor in the intense process of the social modernisation of Andalucía over the past few decades. It has facilitated the access of the rural population to education and healthcare, and the economic diversification of small towns from a model focused almost exclusively on agriculture to one that gives greater importance to services, especially tourism. These changes fostered the social and cultural transformation of Andalucía, favouring, for instance, the increase in the participation of women in the labour market. The female employment rate has more than doubled in last decades, rising from 18.7 percent in 1989 to 49.7 percent in 2007, just before the start of the economic crisis.

***EQ1b: What was the strategy of ERDF programmes in each programme period? What has been their evolution?***

In the 1989-1993 period, the ERDF strategy concentrated on addressing the external isolation and the internal dislocation of the region through investment in transport infrastructure. The development of water management infrastructure to address important needs in this area was also a main concern. Certain interventions in the field of structural adjustment and enterprise were also significant elements within the strategy for regional development in this period.

In 1994-1999, improvements in accessibility and connectivity through the development of transport and telecommunication infrastructure remained at the core of the regional development strategy, along with environmental infrastructure and the conservation and protection of nature. However, the strategy became more complex, and the actions related to regional incentives and support for the creation, expansion and modernisation of enterprise increased in importance. Other objectives and interventions in the field of social infrastructure (education and healthcare) as well as tourism infrastructure further contributed to the enrichment of the strategy.

In the 2000-2006 programme period, transport and environmental infrastructure remained the main elements of the regional strategy. However, competitiveness, the knowledge economy and innovation also became priorities. The increasing focus on enterprise and innovation as a means of directly addressing low levels of regional competitiveness has been the most important feature in the evolution of programme strategies over successive periods.

The 2007-2013 programme is focused on the consolidation and reinforcement of this evolution in line with the region's new strategy - the Strategy for the Competitiveness of Andalucía (ECA, 2007)- as well as with the objectives of the Lisbon Strategy and the National Reform Plan of Spain. Consequently, the strategic emphasis on innovation and the knowledge economy has been the main new characteristic in this programme period. Nevertheless, important funds have also been allocated to infrastructure and environmental protection projects.

The analysis of evolution within the main themes of intervention should start with transport infrastructure. Overall, the Andalucía development strategy focused on reducing the isolation and low connectivity of the region through large investments in transport infrastructure. Initial programmes concentrated heavily on the main transport infrastructure projects, thereby addressing the problems of peripherality and the territorial disarticulation (for example, the A92 motorway connecting Seville-Granada-Almería or the first high-speed line - AVE - connecting Seville-Córdoba-Madrid). Though this strategic area remained a high priority over successive periods, the achievements in accessibility and internal connectivity led to a gradual decrease in the relative importance of transport infrastructure. Later programme periods included measures to complete transport axes and interprovincial and county networks, to repair, maintain and environmentally adapt the transport network, and to improve road safety.

Environmental infrastructure and reforestation were also given great importance as the second most important priority, which also remained constant over the programming periods. In this area, the strategy evolved from the initial focus on water infrastructure (supply and sanitation) in the earlier periods towards the protection and conservation of nature in the later ones.

Regional incentives have been given to companies investing in the region since the initial programme periods, as a mechanism to support structural adjustment. The implementation of the strategic change towards enterprise and innovation in the later programme periods benefited from

the application of new financial instruments. JEREMIE and JESSICA funds have been introduced in the current period, providing a more efficient design of the incentive system.

R&D and innovation were reinforced through the support of research projects and infrastructure in universities, enabling the transfer of technology, knowledge and applied research. A regional network of research and technology centres was deployed with the intention of meeting the specific needs of Andalucía's productive sectors.

The regional strategy also addressed the needs regarding social cohesion (education, health and other social services), both directly and indirectly, also taking this objective into consideration when planning the development of infrastructure.

***EQ1c: What were the priorities and objectives of ERDF programmes of each programming period? What has been their evolution? Were the objectives SMART?***

All of the Andalusian programmes shared the common goals of fostering economic development and convergence with Europe, as well as ensuring environmental sustainability and the fair distribution of benefits to the citizens of Andalucía.

The initial objectives focused on market integration and access to other markets in order to realise the economic growth potential of the region through investment in transport infrastructure in order to achieve social cohesion. However, the most profitable projects were not always selected, resulting in opportunity costs.

In the earliest programme periods, environmental infrastructure and reforestation were given great importance. The 1994-1999 programme focused on the expansion of university and secondary education. The latter was made mandatory.

From 2000-2006 onwards, the focus was on competitiveness, RTDI, technology transfer and the regional innovation system. With regard to whether or not objectives were SMART:

- The first specific objectives were set in 1994-1999. They were overly detailed, large in number and predominantly focused on output rather than result targets. Targets were mainly focused on induced private investment and job creation. The 2000-2006 programme period saw a significant reduction in the number of specific output targets. The main result indicator, job creation, was derived from the direct employment created through the measures taken in the area of enterprise policy, and it also included estimated figures for jobs maintained and jobs created through the construction of large infrastructure. In the current period, the number of output targets has again been decreased, with a reduction in their overly specific nature. Despite improvements in result targets, the indicator system remains focused on output targets. Job creation in the construction stage of infrastructure and estimated figures for jobs maintained are no longer included, enabling a clearer view of the direct impact of enterprise policy on employment.
- Objectives were measurable, but forecast errors were substantial in the 1994-1999 period. Errors in prediction persisted in 2000-2006, but a more coherent system of indicators was put in place, which resulted in the more efficient reporting of outputs to monitoring committees and in final implementation reports. The setting of objectives (especially output targets) has been greatly improved in the current period, with the inclusion of intermediate target forecasting for 2010 in order to facilitate ongoing monitoring.

- Objectives were generally attainable in 1994-1999 but forecast errors necessitated the amendment of the targets through a reprogramming process. Despite an improvement in forecasting, a similar situation prevailed in 2000-2006. In the current period (2007-2013), target setting has been more efficient, resulting in a greater achievability of targets set. However, the onset of the economic and financial crisis has had a negative impact on actual achievements.
- Throughout successive programme periods, objectives have generally been relevant. However, due to the numerous output targets set in 1994-1999, some of these were refined in the two following periods, resulting in increasingly relevant output targets. Targets relating to results, including employment creation, were also defined in a more coherent manner over time, leading to increased relevance, especially in the current period.
- In 1994-1999 and in 2000-2006, objectives were not timely due to forecasting errors which led, as already noted, to the necessity to amend targets. In the current programme period, output target setting has been considerably improved, however the programme was affected by late approval and by a delay in the implementation of the information system. The information system now operates efficiently, but the capability to redirect measures has been reduced by the impact of the economic crisis.

As a result of this evolution, objectives are becoming increasingly 'SMART' (specific, measurable, achievable, realistic and time-bound) but this has yet to be fully achieved.

***EQ1d: What has ERDF support been spent on in each programming period? Have there been significant transfers from initial allocations of ERDF resources to other priorities in any period?***

Along all the periods, few thematic axes absorbed the great majority of the ERDF funding, namely: infrastructure and spatial distribution of economic activity, environmental sustainability and structural adjustment (in order of importance). Among them, there has been a decreasing participation of infrastructure in favour of environmental sustainability and structural adjustment. From an overall perspective, the fourth thematic axis in terms of total funding was social cohesion (health and education).

In the first programme period, the infrastructure and spatial distribution of economic activity thematic axes amounted altogether to 73.1 percent of total ERDF expenditure. This funding was invested mainly in transport infrastructure to improve accessibility within the region as well as to the rest of Spain and Europe through the construction of new motorways and road and rail infrastructure. Environmental sustainability (infrastructure for water supply and sanitation) at 12.6 percent and structural adjustment (regional incentives to attract capital and investment) at 9.0 percent of the total expenditure were the following most important thematic axes in this period.

In the 1994-1999 period, the relative importance of regional infrastructure fell to 42.3 percent of total funding, though it remained by far the greatest priority, followed again by environmental sustainability (water infrastructure and conservation and protection of nature) with 37.0 percent and structural adjustment (regional incentives and support for the creation, expansion and modernisation of enterprises) with 11.4 percent of total expenditure.

In the 2000-2006 period, the infrastructure and spatial distribution of economic activity amounted to 48.1 percent of the total expenditure encompassing new infrastructure (provincial roads, improvements in the railway transverse axis Seville-Granada, construction of the new high-speed



train to Málaga), road safety and repair and conservation interventions. Environmental sustainability (natural habitats -with an increasing importance- and water supply and wastewater management) and structural adjustment (business competitiveness) absorbed 24.2 and 11.5 percent of total expenditure respectively.

In the current period, total allocation figures are used to enable a more suitable comparison with previous periods due to the differing rates of realised expenditure across the various priorities. Infrastructure and spatial distribution of economic activity amounted to 35.5 percent of total allocations (with an emphasis on conservation measures and environmental adaptation, the connection of inner areas and improvements in the Cádiz-Seville-Granada railway axis). The environmental sustainability axis, with 21.2 percent of the allocations, focussed on water management and natural environment and risk prevention. The evolution towards increasing efforts in innovation observed in the 2000-2006 period was reinforced in the 2007-2013 period, when the innovation thematic axis accounted for 18.5 percent of total allocations (knowledge economy, R&D, transfer of knowledge, cooperation between companies and research and technology centres). Structural adjustment came next as the fourth most important theme, with 14.8 percent of total allocations. Lastly, social cohesion represented 6.1% of total allocations in this period.

Andalucía's financial absorption capacity has been high throughout all the programming periods and total expenditure exceeded the initial allocations in the ROP. Overall, actual expenditure has been in line with allocated amounts over the programming periods and significant transfers from initial allocations to different priorities were not observed.

Allocations in the first programme periods were determined at a constant European Currency Unit (ECU) value. Indexations to compensate for the changes in prices and exchange rates resulted in a significant increase in the funding amount, which was redistributed amongst different priorities. A similar process occurred in 2000-2006 with the reallocation of the so-called performance reserve. In general, the actual expenditure was equal to initial allocations, exceeding these in a wide range of priorities. The environmental priority was reinforced in both periods, but there is no clear pattern in the allocation of extra funding amounts. Moreover, the effects of the changes in allocations on priorities in the ROP are often negated by different allocations in the NOP. Consequently, changes in the whole strategy can only be deduced by looking at the entire CSF.

## ***7.2 EQ2: To what extent do ERDF achievements meet regional objectives and needs in each programme period and across all periods?***

The most important ERDF achievements across all periods are associated with the improvements in regional accessibility and territorial connectivity, water supply and sanitation and environmental conservation. The achievements in transport infrastructure met regional objectives, reinforced internal interconnectivity and contributed towards reducing the isolation of the region. The achievements in environmental sustainability were also substantially in line with regional needs and the objectives established. The accumulated assets in environmental infrastructure have benefited a large proportion of the population, but operational problems have limited the positive effects of water purification in some municipalities.

Achievements in the fields of business development and structural adjustment have been more limited. Overall, progress was made in business development and building an entrepreneurial culture throughout the programming periods, but the achievements were not sufficient enough to substantially change the entrepreneurial system in Andalucía. Interventions have contributed to the development of the knowledge intensive services and the tourism sectors, along with the spread of

the latter to rural areas. However, the need for diversification based on industrial development has not been successfully met in spite of developments in some emerging sectors (aeronautics and renewable energy).

Whilst employment creation was not a direct objective of ERDF measures, the vast majority of the actions implemented were aimed at reinforcing the economy and creating employment opportunities. From the mid-1990s to the emergence of the current economic crisis in 2008/9, the strategy was effective and led to a significant increase in employment in Andalucía. Particularly, in 2000-2006, induced investment and the creation of employment were stimulated, largely due to investment grants in ERDF programmes. However, the fall in company investment in the period 2007-2013 has impeded achievements from these measures in the current context of the economic crisis.

In the field of RTDI, interesting achievements have been attained in public research through scientific publications, patents and projects awarded in the European research Framework Programme. Private sector investment in RTDI has increased rapidly, but a significant difference remains between Andalucía and the Spanish average.

Finally, ERDF achievements in the fields of health infrastructure, education and social services have consolidated a territorially balanced and socially inclusive model of regional development.

***EQ2a: What are the reported achievements of each programming period?***

Reported achievements fundamentally focused on outputs (motorway kilometres, number of RTDI projects, etc.), but several referred to results such as jobs created and induced investment, and others captured specific information, for example the intensity of traffic or number of patents. In general, the information on reported achievements improved throughout the programme periods, but there is a lack of information regarding the extent to which economic development and changes in regional needs are attributable to the ERDF interventions.

The most significant achievements are described below, whilst a detailed review of reported achievements is provided in Annex III.

In the 1989-1993 period, several large projects (high speed train Madrid-Seville and A-92 motorway Seville-Granada) were completed enabling the reporting of important achievements despite the lack of set targets in the period.

In the following period of 1994-1999, reported achievements were more extensive and included a substantial reduction in travel time of 49 percent across the region and a 31 percent reduction in casualties on the road. 600 thousand people benefited from the newly improved system for the supply and sanitation of water. Furthermore, the enrolment rate in secondary education increased from 67 to 78 percent.

The motorway network was completed in 2000-2006 with a 23.7 percent increase in road capital, whereby railway capital increased by over 50 percent. Moreover, 47 percent of Andalucía population benefited from the sanitation and water treatment in the period. In the area of structural adjustment induced private investment reached almost 13 percent of fixed private capital formation and job creation amounted to 1.6 percent of the employed population. Finally, business RTDI expenditure increased from 0.2 to 0.3 percent of regional GDP, whereby the total RTDI expenditure went from 0.65 to 0.89 percent of GDP. In 2000-2006, induced investment and

the creation of employment were stimulated, largely due to investment grants in ERDF programmes.

The current period of 2007-2013 has yet to conclude and has been severely affected by the economic and financial crisis. Achievements in the period for 2011 include a 28 percent increase in wastewater treated although important needs remain to be met in this field. In the business and structural adjustment area, induced private investment merely reached 12% of the 2000-2006 values, but a JEREMIE fund has been set up with 45 projects approved and over € 300 million of induced private investment (approximately a third of the total). Furthermore, efforts in the area of regional innovation system and knowledge transfer have aided an increase in business RTDI expenditure from 0.35 to 0.43 percent of GDP between 2008 and 2010, whilst total RTDI expenditure in the region has increased from 1.0 to 1.2 percent.

***EQ2b: To what extent were objectives achieved in each programming period?***

On the whole, a higher degree of success was obtained in relation to objectives of a more physical nature, such as accessibility and increases in the volume of waste water treated, than in those related to entrepreneurial capabilities and business RTDI. In general, objectives in each programme period were achieved; however this was facilitated by the fact that targets were amended in the 1994-1999 and 2000-2006 periods as a result of forecasting errors.

In the first programme periods the ambitious objectives in regional accessibility, territorial connectivity and water management were translated into significant achievements. The achievements recorded in secondary education also met the objectives formulated.

The interventions aimed at facilitating structural adjustment, implemented across successive programming periods, failed in respect of building a sustainable manufacturing sector strong enough to significantly diversify the economic base of Andalucía. Diversification has mainly occurred through advances in tourism and other services activities.

From 2000-2006 onwards, more ambitious business RTDI and technology transfer objectives were set. The resulting improvements in the RTDI public system reasonably met the objectives of the interventions. However, the objectives of technology transfer and promoting collaboration between research centres and industry were not fully realised.

The goal of promoting territorially- and socially-inclusive development has been achieved thanks to multiple interventions across all the programming periods regarding accessibility, education, health and social infrastructure in the small and medium-sized towns.

***EQ2c: To what extent were needs met in each programme period? To what extent can observed changes in regional needs and problems be imputed to ERDF programmes over time?***

Regional needs were met with different levels of intensity. In the first programme periods of 1989-1993 and 1994-1999, the degree of external accessibility and internal connectivity of Andalucía was increased with the reduction in travel times and number of accidents due to an increase in road and rails assets (65 percent and 35 percent respectively). This improvement is clearly attributable to ERDF investments.

A similar occurrence can be observed in hydrological infrastructure with increases in population connected to the wastewater networks and in the volume of wastewater treated, although some problems in the application of the treatments diminished benefits. In the most recent periods,

environmental protection has extended to large areas of the regional territory and many studies and investments in protection and preservation have been supported with ERDF funding.

Other improvements in regional development needs are more limited and difficult to evaluate as they occur in cases of enterprise competitiveness and structural adjustment. Particularly in the development of industrial diversification, the needs for private capital and employment of Andalucía experienced an improvement in the 2000s, when ERDF investment grants played an important role in the formation of private capital and employment creation. However, the need for structural adjustment remains unsatisfied to a large extent because of the industrial sector (except energy and construction) did not take advantage of the high growth rates in the 2000s. Moreover, in the current period, these needs have increased due to the economic crisis, and the effects of ERDF investment grants are decreasing due to a reduction in company investment.

Needs in the field of RTDI improved from the perspective of university and research centre publications largely due to ERDF support. Moreover, the ERDF also contributed to improvement in the regional innovation system through endowments to science and technology parks and technology centres. The Andalusian regional innovation system still depends greatly on public support and the role played by private actors and companies is still very limited.

In education, enrolment rates in secondary and university levels increased substantially, and the ERDF played an important role, providing infrastructure and equipment to meet the increased demand. However, the effect of this was partially diminished due to weaknesses in the Andalucía educational system, unrelated to the infrastructure.

***EQ2d: What have been the complementarities and synergies of ERDF interventions with ESF, EAGGF/EAFRD, and with domestic regional policy interventions?***

Coordination and complementarities amongst the different EU Structural Funds' eligibility rules can usually be found at the CSF level. For example, investment in educational infrastructure is financed by the ERDF whilst current expenditure for vocational training and PhD scholarships is undertaken by the ESF.

There have been important synergies between ERDF and ESF actions in Andalucía over the programme periods. The interventions undertaken to compensate for the traditional deficiencies regarding entrepreneurship in Andalucía are a good example of these complementarities. In this field, direct support for business development financed by the ERDF (financial instruments, industrial land and support services) were implemented to address the weaknesses of the business structure. These actions were complemented with training and development activities to encourage an entrepreneurial culture amongst executives, entrepreneurs, workers and the general population, financed by the ESF (e.g. access to consulting and specialised courses, vocational and occupational workshops, etc.). Similar actions were taken in the field of R&D and innovation: the ERDF funded the infrastructure and equipment of educational and research centres, whilst the ESF funded courses for occupational training and scholarships for PhD research students.

Interesting examples of additional synergies can be found between the ERDF and the EAGGF in the case of rural tourism, with the ERDF co-funding the building of 'Tourist Villages' and the LEADER programme (EAGGF) supporting the renovation of private tourist accommodation in rural houses. The combined effect of these actions leveraged the reputation of rural tourism and provided a wide offer to meet increased demand. In the case of the Andalusian Forest Plan, the ERDF supported the

prevention of soil erosion and fire equipment, whilst the EAGGF invested in the reforestation of marginal agricultural land, pest control, etc.

In addition, a high level of coordination has been observed among EU Structural Funds and domestic regional policy in Andalucía. The successive regional strategic plans provided the grounds for the regional development plans and the negotiation of the separate Community Support Frameworks (CSF). In this manner, EU resources were embedded in the regional strategic planning. The case of the Andalucía Competitiveness Strategy (ECA, 2007) is a good example of this, as it provides the overall framework of regional development needs and policies for the current programming period of 2007-2013.

***EQ2e: What has been the overall contribution of ERDF programmes to regional development?***

Econometric simulations suggest an important effect of ERDF investment on the rate of growth and employment, in comparison to the baseline scenario with the absence of ERDF investments (Herce, Avilés *et al.*, 2004; Marchante and Sánchez, 2005; Sosvilla and García, 2009). These results are convincing and are supported by the perceptions of the participants in the online survey. The strategy of overcoming the barriers to accessibility and integration of the Andalusian economy to the European markets, as well as regional incentives for company investments in the region, seems to have achieved the objectives during the growth cycle of the late 1990s and 2000s. The accumulated assets of public and private capital increased, and Andalucía experienced an unprecedented growth in employment. However, the areas of innovation and competitiveness have experienced substantially smaller results. Deficiencies persist in the fragmented entrepreneurial structure of Andalucía, and the increased resources in the regional innovation system still have a large task ahead.

The economy diversified due to tourism and services. Several industrial sectors such as agri-food and several high value-added clusters (aeronautic, ICT, renewable energy) are of a dynamic nature, but their relative weight in the Andalusian economy decreased to very low 9 percent of regional GVA and employment in 2007.

Despite the persistence of several problems, environmental conditions and the natural and cultural heritage in Andalucía have improved substantially in the last programme periods, largely due to ERDF funding.

At present, Andalucía is severely affected by the current financial and real estate crisis, but overall it has experienced a substantial modernisation of its physical, human and knowledge capital, as well as an improvement in the quality of life. Many problems remain to be solved, but a large number of the achievements are attributable to ERDF investments that have facilitated the capitalisation and upgrading of the economy and society of Andalucía within a relatively short time.

**7.3 *EQ3: What are the main lessons learnt on the effectiveness and utility of ERDF interventions?***

One of the most important lessons learned from the Andalusian experience of the late 1980s is the effect of the territorial articulation policy and the way in which it connected the regional market and increased inner and external accessibility, boosted growth potential and generated important structural changes. The increase in the employment rate of the female population, the economic improvement in rural areas, and the increase in the traffic flows are all clear effects with a long-term perspective.

Another interesting lesson is the potential of rural tourism as a dynamic factor of the economy and society, as well as the convergence of household income and opportunities. In the very first programme periods, the boosting of supply helped to generate the demand conditions and future utilisation, palliating the structural backwardness of many areas. A concrete example is the 'Tourist Villages' programme, with public investments creating a supply of accommodation and helping to foster the natural landscape and cultural values of areas distant from the largest tourist centres. The increase in the number of tourists proved the sustainability of this type of tourism, which revitalised business and the local economy (Cazorla, Alpujarra, Aracena, etc). Not all these cases were successful, but the balance can be considered as positive overall.

Programmes in Andalucía were conceived from a supply side perspective, aiming at releasing the growth potential which was hindered by the serious deficiencies in infrastructure (transport, environmental, technological, etc.). This strategy implied a strong leading role of the public sector. However, the role for demand analysis and the participation of private agents in the design and implementation of the programmes was not important and this might have limited the capacity of the programmes to trigger a sounder market expansion and consolidation. This consideration is particularly relevant in the more recent programme periods, when the main infrastructural bottlenecks have been eliminated and the modernisation of Andalucía has had to lever on more complex and articulated private sector.

Lastly, a relatively bitter lesson learned was that greater importance must be paid to sustainability when designing interventions. This implies the need for careful consideration of the maintenance costs and future investment required for the efficient operation of infrastructure, without dependence or excessive pressure on public budgets. This consideration can be applied to transport, environmental (wastewater treatment plants) and technological infrastructure (technological centres). The case of Andalucía indicates that it would be necessary to evaluate in detail the conditions for the future viability of these interventions and to design a realistic operational and financial model for the functioning of the infrastructure to be built before getting involved in financing and construction. This issue is especially important in times of budget constraints and fiscal consolidation.

***EQ3a: What are the main good/bad practices?***

Among the ERDF management in Andalucía, the following successful points can be highlighted.

- The effective collaboration between the central government and the autonomic governments in the planning and programming processes of the development measures over the needs of regional development.
- The creation of an administration specialised in European funds' design and management: with the Direcciones Generales de Fondos Comunitarios, the planning of the central government and the regional governments have achieved coordination and a fluid level of contacts and dialogue.
- The closing of the planning-programming-budgeting cycle: already approved, all the Operational Programmes, the expected actions and their annual expenditure allocations are incorporated in the budgets of the beneficiary bodies (the majority of these are public organisations)

- Country technical capabilities: human and professional resources skilled in the management and construction of infrastructure (administrations, civil engineering groups, schools, etc.) that enabled the effective execution of large civil works, partially funded by the ERDF.

However, the strong points mentioned above also had negative counterparts, the most important of which were as follows.

- The central government and the regional governments were the main actors in the design and conception of the programme measures and actions and were also the main organisations that implemented them. Consequently, in Andalucía as in the rest of Spain, the private sector had low participation in the design and management of the ERDF programmes.
- The channelling of the great majority of the ERDF funding through the central government and regional government budgets may limit the information and the initiatives for business needs and technology sectors that could play a better role in regional policies.

Finally, most of the managers of ERDF-funded projects have expressed concern regarding the slowness of procedures and the excess of inspections and petitions of documentation. The management costs are substantially high and require substantial effort and energy. This opinion is in accordance with the opinions expressed in the survey (68 percent of responses) stating that management should be simplified. There is a possibility that this is related to the fall in the assessment of the ERDF programmes' ability to flexibly adapt to the changes in the economic circumstances in the current period, and, especially, to beneficiaries' needs.

***EQ3b: What conclusions can be drawn for improving ERDF programme design, implementation, results-based management, achievements?***

Based on the Andalusian experience with the ERDF, several conclusions can be derived which could contribute to improving the design and results of the initiatives within the European Structural Funds.

- Firstly, the role of demand assessment and the participation of private agents in the design and implementation of programmes seems to be crucial when interventions aim to foster entrepreneurship and innovation in the private sector. This increase in private sector participation in regional development policy and ERDF programmes should imply a more active role for mediator organisations linked to the business, technology and institutional lobbies (enterprises, foundations, associations and other non-profit institutions).
- Secondly, the case of Andalucía shows the need for detailed evaluation of the financial and operational viability conditions of selected projects. In this respect, financial design and planning and the sustainability of infrastructure should be improved, paying more attention to operational and maintenance costs.
- Thirdly, the previous conclusions also suggest reinforcing the role of financial instruments (guarantees, loans, equity financing) with experts and know-how from the financial sector

(the JESSICA urban development funds are a good example to follow), and also draw on mixed instruments, as partially reimbursable aids, in the most risky fields. This last suggestion is based on boosting the performance of public resources and the incentive of a selection of projects with higher yields of return.

- Fourthly, monitoring and evaluation should be reinforced and should also play a more influential role in decision-making processes.
- Finally, the management of ERDF projects could benefit from a simplification and clarification of procedures and rules. These possible improvements might cut down the monetary and non-monetary costs (time, uncertainty, etc.) of project management.



## 8. ANNEX I - ANALYSIS OF SELECTED PROJECTS

### 8.1 Motorway A92

#### 8.1.1 Short description

The A92 is an Andalusian motorway that belongs to the basic road network in charge of the regional government of Andalucía. It constitutes an east-west route of high capacity that links Seville with Almería through Granada (Map 12). The A92 avoids the inconveniences of the traditional Spanish radial road network centralised in Madrid. This itinerary is completed with the A92 North - from Guadix to Puerto Lumbreras in the Murcia region. It also has the diversionary A92M, which avoids the transit through Antequera in the Granada-Málaga connection. This is the largest regional motorway in Spain: it has 395 km between Seville and Almería to which 119.7 km of its North diversion can be added.

Its construction began in 1988 to give support to the Seville 1992 universal exposition. The last tranche was fully operative in September 2002, linking Guadix with Almería and marked the end of the project.

The A92 was built by the regional government of Andalucía with ERDF funds, credits from the European Investment Bank and other sources. The Spanish central government was tasked with funding the Baza-Puerto Lumbreras tranche (currently A92N). The total investment amounted to €611.8 million of which €420.5 million were ERDF funds (69 percent of the total funding).

Map 12: Plotting the A92



Source: Economic Analysts Andalucía.

#### 8.1.2 Underlying problems and context

Andalucía is a heterogeneous region, very large in size and densely populated with a polycentric territorial model. At the beginning of the 1980s, this polycentric distribution was embedded in a context of low economic interrelation between an industrial Western Andalucía (Huelva, Cádiz and Seville) and an Eastern Andalucía more specialised in tourism and agriculture (Málaga, Granada and Almería). The weak internal articulation of the regional productive system therefore had a double dimension (spatial and sectoral) as shown in the Input-Output tables of the Andalusian economy.

Therefore, a process of investment in new transport infrastructure to provide structure, form and cohesion for a more integrated regional market was necessary. In particular, a transversal axis of

high capacity to integrate the Western and Eastern areas in order to boost the economic take-off was the most urgent need.

Within this context, the development of the Andalusian road system was conditioned according to two groups of factors:

- In first place, geographic and geological factors. In this respect, it is important to mention that Andalucía has a geo-strategic position as a bridge between Europe and Africa and between the Atlantic Ocean and the Mediterranean Sea. However, it has a 'rectangular' spatial configuration whose East-West dimension duplicates the North-South one. Moreover, its surface is very complex, with three mountain systems (Sierra Morena, Sierras Subbéticas and Sierras Penibéticas). This fact forced the design of roads with a high unit costs and low density compared with the national and European roads.
- In second place, infrastructure and transport investment policies applied in the region so far. At the beginning of the 1980s, the need for road investments was very clear: the Andalusian network of roads was mainly structured around single-way roads. The only exception was the toll highway Seville-Cádiz (currently AP4) and around 24 km of highway Seville-Huelva (A49). Moreover the radial structure of the roads meant that the Andalusian roads were structured in a ring shape communicating with Madrid through Bailén (Jaén).

### **8.1.3 Detailed description**

The A92 project has its roots in two complementary events:

- On the one hand, at the beginning of the 1980s, the Ministry of Public Works and Urban Development (MOPU) of the central government began to elaborate the general plan for roads (1984-1991), where important investments in roads were planned taking into account the impending accession of Spain to the European Community. One of the principles of this plan was to soften the radial system by means of a more homogeneous network of roads.
- On the other hand, in 1984 the transfer of transport competences from the central government to the regional one was made. The regional government of Andalucía realised that the road network had several weaknesses and also that the radial structure was an obstacle for regional development. In order to tackle these problems, the regional government of Andalucía made the development of a road network that provided cohesion to the territory one of its priorities. Moreover, in 1985, Seville was named as a candidate to be the venue of the universal exposition in 1992. To succeed in this bid, an increase and improvement of infrastructure not only in Seville but also in the rest of the region was considered fundamental.

On this basis, the regional government of Andalucía committed to build the most important and more expensive infrastructure project developed by a regional government: the Seville-Granada-Baza motorway, commonly known as motorway 92 or the A92, which was supposed to be finished to commemorate the universal exposition. The coordination and complementarity between central and regional governments facilitated the inclusion of the A92 within a project of infrastructure improvement in the region that was larger and more ambitious. The regional government of Andalucía would concentrate on the A92, whereas the central government would assume, among other actions, the duplication of the national road IV, finishing the A49 motorway until Huelva, the

ring of Seville (SE30), the improvement of the access to Málaga and connection to the region with Levante.

The large investment effort was only possible with the support of European funds by means of the ERDF. The A92 received ERDF funding in all regional operational programmes of Andalucía. In this respect, the eligible public expenditure channelled by the ERDF to the A92 project and to the A92N was divided among individual projects of the Community Support Framework 1989-1993, the Operational Programme of Andalucía of the Community Support Framework 1994-1999, as well as the Operational Programme 2000-2007 in its sections of roads and motorways and security and maintenance actions regarding the quality of the transport infrastructure.

The A92 design took advantage of the old national roads: the N334 of Seville to Antequera and the N342 from Antequera to the boundary of the Murcia region. It also involved the construction of a series of rings in all of the population settlements that it went through. This design was not decided in advance. For some of the tranches, the possibility of alternative routes was considered and some studies about the costs involved were carried out. At the same time, the advantages of crossing some population settlements to favour their development were analysed, despite the fact that they implied some diversion with respects to other shorter alternatives.

The works started in 1988. The first stage of the A92 had some delays and was finished in 1993, although in 1990 the tranche between Seville and Granada (256.9 km) was inaugurated. However, the condition with Almería proved to be slower and problematic. At the beginning, the construction of the tranche between Baza (Granada) and Puerto Lumbrera (Murcia) was the responsibility of the Ministry of Public Works and Urban Development (MOPU). From the different alternatives at its disposal, the MOPU favoured a design heading north, which implied a higher traffic demand but on the other hand it also implied that the city of Almería was better connected with Murcia than with the rest of the Andalusian capitals. This road layout was finished in 1997, making the current A92N. The funding of this first stage amounted to €495.8 million of which €339.3 million were ERDF funds.

The regional government of Andalucía considered that the layout of the A92N could not fully support the Almería region, and therefore in 1992 it decided to enlarge the motorway heading south (Guadix-Almería). This second arm, known as the A92 Sur, was opened to traffic in 2002, fully finishing the current layout of the A92. The A92 Sur was labelled a major project (European Commission decision of 12 July 2002). To implement this project, the regional government of Andalucía, by resorting to the transport and public works department, certified a total expenditure of €116 million with ERDF aid of €81.2 million.

#### **8.1.4 Results and achievements**

The A92 has been an important push for the road transport infrastructure network of Andalucía, making an improvement of both internal and external connections of the region. In this way, its construction allowed the fulfilment of one of the priority objectives of the regional development strategy - to support the territory - which was done in three different spatial contexts: regional, national and European:

At regional level, the A92 is the main transport infrastructure which connects the Eastern and Western provinces of Andalucía allowing the unification of the internal market. In particular, it is important to mention the integration of Almería province, traditionally isolated from the rest of

the region. Moreover, the A92 has improved the interconnection of the large agglomeration centres in the interior of the Andalusian coastal areas, sewing a sort of grid net within the territory. In this way, it has had important spillovers effects on the Málaga Sun Coast and in the Huelva province as well as on other intermediate urban centres on the coastal strip, on the interior agricultural areas and on the rural mountainous areas (for instance Baza, Guadix, Osuna, Marchena, Antequera or Loja, which have registered a very important dynamism).

At a national scale, the A92 has meant a very important improvement of the connections of Andalucía with the rest of Spain and especially with the regions of Levante (Alicante ad Murcia).

Finally, at a European level, the A92 has increased accessibility with respect to the Atlantic and Mediterranean axis, by constituting an alternative itinerary to the road axis that crosses Madrid for communications with Europe. In this way, the A92 also has transnational effects since it improves the connection of the Euro Mediterranean axis and also the South of Portugal.

The higher connectivity of Andalucía has positively affected the productive system and therefore has impacted on growth and territorial development.

The A92 has improved the speed and comfort of journeys, decreasing time (see Table 21), congestion levels and number of accidents.<sup>34</sup>

**Table 21: Distances and travel times**

Routes	Distance (km)	Time without A92 (min)	Time with A92 (min)	Reduction (%)
Huelva-Málaga	292.80	191.88	161.93	-15.61
Huelva-Almería	487.29	347.11	268.24	-22.72
Huelva-Granada	337.06	235.02	187.02	-20.42
Málaga-Jaén	198.59	128.06	115.40	-9.89
Málaga-Granada	120.34	86.56	73.90	-14.63
Seville-Almería	391.19	295.65	216.66	-26.72
Seville-Granada	240.95	183.54	135.54	-26.15
Seville-Málaga	197.19	141.03	111.08	-21.24
Cádiz-Granada	325.47	229.45	189.32	-17.49

\* Average speed considered: 100 km/h on the highway and 80 km/h on national and local road

Source: Economic Analysts of Andalucía.

These effects have allowed better accessibility to markets, the production centres and raw materials. The statistics show that the volume of traffic on the A92 has been increasing since its

<sup>34</sup>According to the projections made by Economic Analyst of Andalucía (2001), if the A92 South had not been built the total number of accidents between 1998 and 2027 would be estimated of 1,814, comprising 3,191 wounded and 327 recorded deaths. However, the construction of the highway reduced hazard rates and mortality estimates, reducing the number of accidents by up to 1,146 and the number of injuries and deaths by up to 1,970 and 175 respectively for the same period 1998-2027. Actual figures show that between 1998 and 2001 road accidents on the A92 South were 142, with a total of 24 dead and 248 wounded, whereas with the implementation of the various sections of the highway, the number of accidents was reduced to 90, with a balance of 13 dead and 110 injured (46 percent less).

beginnings (see Table 22). That increase is observed both for light vehicles (with a high importance in commuting for job purposes) as well as in heavy vehicles (which represent around 13-14 percent of total vehicles), since more than one-third of Andalusian firms use the A92 for logistical reasons.

**Table 22: A92 Traffic volume\***

Year	Vehicles km. Year *
1994	1,639,088,564
2000	2,388,212,286
2005	3,326,414,809
2007	3,513,657,393
2011	3,075,575,801

Source: Regional Department of Public Works and Transport.

\* Does not include A92 North

Lastly, it is important also to bear in mind the direct impact on employment and dynamism of the public works sector in Andalucía. It is estimated that the construction of the A92 generated 45.381 new jobs.

The construction of large infrastructure such as the A92 highway comes at a cost. In this respect, the execution of the work received critiques linked to the lack of experience of the regional government in such projects, incorrect geo-technical studies and the timing for its construction. These problems caused the road to erode very quickly due to an increase in traffic that was higher than expected. This meant that important improvement and maintenance works had to be carried out. Moreover, the works accumulated important delays, especially in the stretch to Almería.

### **8.1.5 Added Value**

The A92 was not built because of high-demand and congestion problems, since at the end of the 1970s it was estimated that no more than 1000 vehicles per day were in transit between Seville and Málaga. In fact, in the CSF 1989-1993 evaluation carried out by the Foundation for Applied Economic Studies (FEDEA) (Ministerio de Economía y Hacienda, 1994a), this project was associated with a negative net present value.

Therefore, the added value of the A92 is derived from the supply push, overcoming a bottleneck in Andalusian development and generating efficiency gains for the regional economic system overall. The high socio-economic profitability of this motorway results from its capacity to integrate and articulate lagging territory. The construction of the A92 has allowed the exploitation of important external economies which have been essential for the public and private economic agents in Andalucía, at the same time favouring growth and regional economic development.

In a similar vein, the geo-strategic position of Andalucía implies that its infrastructure plays a key role not only for the region but also for the whole national and European territory. In this respect, the A92 was a very ambitious project whose aim was to articulate the interior of Andalucía and to connect the South of Portugal with the Mediterranean axis improving the accessibility of the flows of goods and passengers at a community level.

Lastly, the boost in construction derived from the execution of the A92 had a very important 'pull' effect for the Andalusian industrial fabric. In this respect, and for the first time, firms cooperated temporarily to undertake the works. Local building companies allied with national building companies to gain size and dimension and also to set up the basis for the development of one of the

key sectors of the Andalusian economy, which would subsequently experience considerable expansion.

Apart from the economic elements, and based on the interviews, the construction of the A92 had also positive effects on the socio-political organisation of the region, which was also causing a historic division between Western and Eastern Andalucía. The connection of the eight Andalusian capitals through this motorway has allowed the Andalusian people to come closer together. This spirit of integration of Andalusian society can be clearly recognised in the marketing campaign for the motorway 'The A92 joins will ("La A92 junta voluntades")'.

### **8.1.6 Conclusions**

The A92 has allowed two important goals in territorial development policy to be achieved. On the one hand, it can be considered as key infrastructure to support the Andalusian region. In previous decades, the lack of infrastructure implied a break in regional economic development, and distinctions could be seen between localised areas of economic dynamism and others with severe development problems. On the other hand, the A92 favoured the territorial articulation of Andalucía within the framework of the supra-regional European Union space. In this respect, this infrastructure has made it possible to have a better connection between Andalucía and the South of Portugal and with the Mediterranean Arch.

## **8.2 Andalucía Technology Park (PTA)**

### **8.2.1 Short description**

The Andalusian Technological Park is located in the Campanillas area about 13 km from the city of Málaga. It constitutes a space with high-quality infrastructure for the installation of SMEs and large companies devoted to manufacturing, advance services and R&D. PTA goes back to 1988 when the commitment for its launch was signed after an agreement between the Málaga town hall and the regional government of Andalucía (Junta de Andalucía).

Four years later, in December 1992, it was officially inaugurated. The PTA has received ERDF funding from all regional OPs. In its initial stage, within the 1989-1993 OP, it received around €20 million, which were employed in the park urbanisation, in the European centre for firms and innovation, and in the centre for communication technologies, among other park infrastructure.

In the next development stages, another €20 million from ERDF were devoted to the enlargement and improvement of its installations. On top of this, all the aid channelled to those firms installed in the park amount to around €30 million of ERDF funding. Overall, therefore, €70 million have been contributed since the creation of the PTA.

### **8.2.2 Underlying problems and context**

The most problematic structural weaknesses of the Andalusian economy include the ones related to its entrepreneurial fabric and more specifically those related to the lack of entrepreneurial culture and the vast presence of micro-firms. In particular, the sub-optimal size of the Andalusian firms can be seen as an obstacle for the development of innovative activities and for the internationalisation of the firms. With regard to the factors that explain these issues, it is important to mention that the conditions of the socio-economic, institutional and cultural environment have traditionally been unfavourable for entrepreneurial development. Based on the

aforementioned problems, it was considered that the development of entrepreneurial and technology parks could act as a micro-environment to launch and develop innovative firms with international aspirations.

Therefore, in the last decades, the Andalusian government has placed the development of new science and technology parks at the forefront of the priorities incorporated in the ROPs. The PTA was the pioneering initiative in this direction, but there are currently 11 science and technology parks distributed across the Andalusian territory. These include the Science and Technology Park Cartuja 93 and the Andalusian Aerospace Technology Park (Aerópolis), both located in Seville.

The Science and Technology Park Cartuja 93 allowed the reuse of infrastructure built for the development of the universal exposition held in the Seville Cartuja Island in 1992, and it has a general orientation. Aerópolis was inaugurated in 2003 and is devoted exclusively to aeronautics and aerospace activities. It was conceived as a park to support the auxiliary Andalusian industry for large Airbus projects partially developed in Seville, particularly the military transport plane A400M and the manufacture of high-technology components for the Airbus 380. Both parks received ERDF funding. At the same time, a network of 22 technology centres has been deployed, some of them located in the same science and technology parks. These technology centres have a sectoral specialisation and are oriented to boost innovation in entrepreneurial clusters located across the Andalusian territory. Science and technology parks, technology centres jointly with the European centres for firms and innovation, and the innovation and technology centres form the Andalusian network of technological spaces (RETA). The RETA was formalised as a private non-profit association in 2005 with the aim of boosting innovation and technological development by resorting to Andalusian technological spaces.

### **8.2.3 Detailed description**

The PTA mentors were the regional government of Andalucía (50.49 percent) by means of the Andalusian Agency for Innovation and Development (IDEA) and the Andalusian Ground Public Firm (EPSA), the Málaga town hall (33.76 percent), the financial institution Unicaja (14.76 percent) and Málaga University (0.99 percent). In 2011, 562 firms were set up in the PTA, giving employment to 130 workers and with a total turnover of €1.622 million. Currently, the PTA extends over a space of 186 hectares, all of them already built or under construction.

The PTA is a general-purpose park, although it is dominated by the ICT sector (electronics, informatics, information and telecommunications) representing around 54 percent of the total employment in the park with both R&D activities and equipment manufacturing and also services. Next in importance are the industrial and medicine and health sectors, with 10 and 7 percent total employment in the park. Technology and R&D centres represent 6 percent of the total employment of the park. The ICT sector jointly with the technology and R&D centres account for around 37 percent of the firms, 60 percent of the employment and 46 percent of the total turnover of the PTA. Traditional industries also have a presence in the PTA, such as those related to the chemical, textile and agri-food sectors.

Among the firms installed in the PTA, more than 50 comprise foreign companies, including multinationals such as Ericsson, IBM, Siemens, Raytheon Microelectronics, Telefónica, Vodafone and Oracle. Total R&D investment in 2011 of the firms and institutions installed in the park was €102 million of which 65 percent were private R&D and 35 percent public. In 2011, a total of 1,426

people worked in R&D activities at the PTA. Technological labs and centres of firms such as AT4wireless, Indra, Isofotón, Ericsson, Adif o Bionand have been installed in the PTA. Málaga University also has installations at the park, including the office for the transfer of research results and the bio-innovation centre, and it collaborates with firms installed at the park. Moreover, the PTA facilitates SME internationalisation by helping them with access to international markets

The PTA seeks to boost the entrepreneurial activities in their different developmental stages. To do so, it has pre-incubators (Centre for the Support of Entrepreneurial Development - CADE - and the spinoff program of Málaga University), incubators (Bic Euronova, Centre for Formation and Incubation, and ProMálaga CW) and incubator buildings, to offer places and localisation for firms emerging from the park.

Incubator (nest) buildings are fully finished buildings with all services offered on a rent basis. Container buildings are buildings of multiple use that are not fully finished and are offered to firms with the exterior urbanisation of land and the services connections ready to be set up in the building.

#### **8.2.4 Results and achievements**

The number of firms and institutions installed in the PTA has grown steadily from the eight entities that were set up in 1992, the year of the inauguration, to the 562 currently present in the park. A similar pattern is observed in relation to the employment, moving from 130 workers in its initial stages to 14,599 workers by the end of 2011. Due to the high demand of firms and institutions that want to set up in the park, a new enlargement of the park is currently in progress, which will increase the extent of the park to 375 hectares.

Since its creation, €752 million have been invested in the construction of the PTA, which also covered buildings and equipment necessary for firms and institutions to develop their activities in the park. Out of this amount, €592 million came from private initiatives and €160 million came from public investments. Therefore, public investment has had a 'pull' effect on private initiatives, since private investment has been twice as large as the public one.

The impact in terms of GDP generated by the entrepreneurial activity in the PTA with regard to the local economic environment reaches a total amount of between €1,725 million and €2,465 million, according to an evaluation carried out by Deloitte in 2011. This evaluation points out that the PTA activity generated or maintained around 13,905 direct jobs and between 23,486 and 39,511 indirect jobs. The contribution of the park to the Málaga economy is estimated to be between 6.05 and 8.65 percent of the provincial GDP and between 1.21 and 1.71 percent of the regional GDP. With regard to employment, the PTA contribution is between 7.04 and 10.05 percent of the provincial employment and between 1.33 and 1.90 percent of the regional employment.

#### **8.2.5 Added Value**

Recent studies carried out on the Spanish science and technology parks (Barge-Gil, 2011; EC, DG Regional Policy, 2011) have shown that, in contrast with the results achieved in similar literature, setting up in a Science and Technology Park has a strong and positive impact on the level of firms' innovation. In this regard, the evidence shows that, especially in lagging areas, parks could be seen as a particularly good environment for firms to develop innovation. At the same time, smaller firms and firms making less effort in terms of innovation are the ones that benefit the most if they



relocate to the park, due to the external effects derived from the proximity to large firms or the presence of technology centres.

In the case of Andalucía, taking into account its entrepreneurial structure, the potential benefits derived from the establishment of entrepreneurial and technology parks could be high. In particular, the PTA has contributed substantially to boosting innovation and modernising the entrepreneurial fabric of its surroundings both in direct and indirect ways through diffusion processes to the external firms of the park. According to the interviewees, being in the PTA brings image and prestige which on the one hand enhances visibility and reputation and on the other acts as a stimulus to boost innovation and the internationalisation process. Therefore, a culture of excellence has emerged as an intangible asset. This aspect, along with the physical infrastructure, can be considered as the key elements that the PTA has contributed to increase dynamism and entrepreneurial competitiveness.

In this way, the PTA can be seen as an international point of reference in the field of scientific and technological parks, and it has been taken as an example to follow in the construction of new parks in the rest of Spain and Latin America. The PTA has acted as the headquarters of the International Association of Scientific and Technological Parks (IASP) since 1996 and of the Spanish Association of Scientific and Technological Parks (APTE) since 1998. Moreover, the headquarters of the Network of Andalusian Technological Spaces (RETA) and the National Association of European Centres of Innovative Firms (CEEI) are also located in the PTA. This national and international projection of the PTA assists with fundraising, the establishment of collaborative relations with other entities and external firms, and contributes to the internationalisation of the firms located in the park.

It is also important to mention that the development of the PTA has benefited from the synergies derived from the investments in infrastructure funded by the ERDF in Andalucía. A very direct example would be the decoupling of the road heading to the park (MA401 MA-Campanillas), which was also carried out with ERDF funds.

### **8.2.6 Conclusions**

The creation and development of the PTA has contributed in a substantial manner to the generation of direct, indirect and induced employment and wealth in the local and regional surroundings. The infrastructure investments of the PTA have supported the attraction of foreign investment and the development and creation of local SMEs. At the same time, the park infrastructure has served as a platform for the development of entrepreneurial projects oriented to innovation and with external projection in those knowledge-intensive sectors that contribute towards a qualitatively more productive structure in the region.

These results could not have been achieved without the ERDF funds. They have been fundamental for the development of the PTA, as well as contributing to the attraction of other public and private investments.

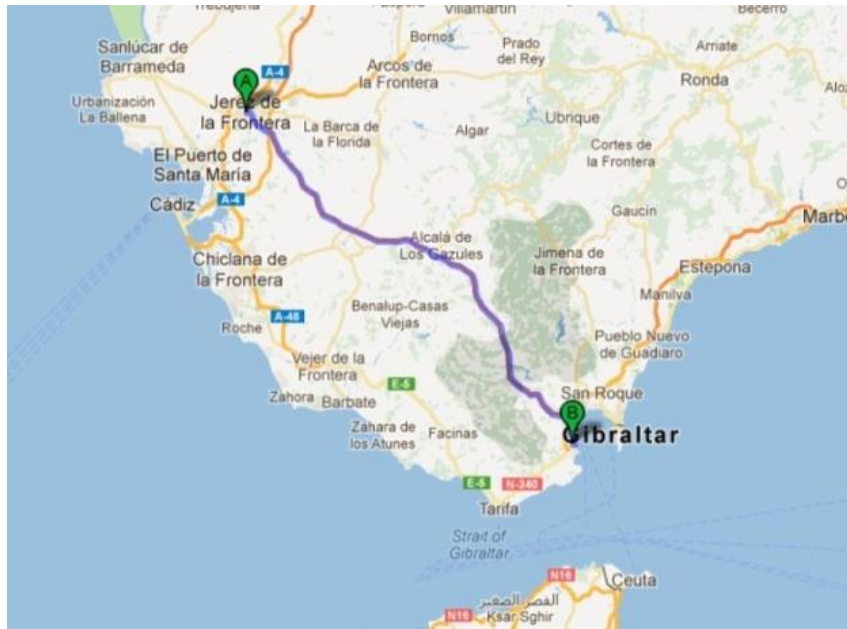
## **8.3 Highway Jerez-Los Barrios (A381)**

### **8.3.1 Short description**

The A381 Jerez-Los Barrios is one of the most important roads in the province of Cádiz (Map 13). It represents the main communication route from the Bay of Algeciras to the Bay of Cádiz-Jerez and is

the main access route to the Port of Algeciras, which is one of the top 10 ports in Europe and amongst the top 50 in the World. The highway runs along almost 145 kilometres of track and has 24 viaducts, 8 overpasses, 20 underpasses, 17 wildlife crossings and 5 green bridges. It was opened section by section between 2004 and 2006.

**Map 13: Plotting the A381**



Source: Own elaboration with Google maps.

A singularity of the A381 is that it passes through Los Alcornocales Natural Park. This fact was taken into consideration at the time it was built, and the road layout was designed specifically to prevent any environmental impact on nature. Construction of the first phase of the infrastructure was funded by the ERDF within the 1989-1993 regional Andalucian Community Support Framework.

However, most of the implementation was performed within the Andalucía Integrated Operational Programme of 2000-2006, with financing from the Junta de Andalucía (30 percent) and the EU through the ERDF (70 percent), totalling €447.38 million. A number of compensatory measures of environmental and landscape restoration amounted to €16.07 million.

### **8.3.2 Underlying problems and context**

The Campo de Gibraltar, located on the southern tip of Europe, is an area with great potential for development. In this geographical area, the Port of Algeciras Bay is regarded as strategic infrastructure within the territorial organisation and transport and communications systems for Andalucía due to its extensive trade port and its proximity to the African continent.

However, the development of this area was until recently conditioned by a poor transport system. Limitations in the terrestrial communications system resulted in the physical isolation of the inner harbour and, with it, in a clear competitive disadvantage compared to other Spanish port areas such as Barcelona, Valencia and Bilbao. The communication path of Algeciras Bay with the Bay of Cádiz and Lower Guadalquivir was the old county road C440, which supported an average volume of high traffic, especially heavy vehicles, due to the transport of goods to or from the Port of

Algeciras. Combined with the steep slopes and sinuous course of the road, this resulted in a high accident rate, with more than 300 accidents per year.

Moreover, the old road was subject to major environmental concerns, since its route ran transversely through the Natural Park of Los Alcornocales Park, one of the richest natural ecology and landscapes of Andalucía included in the Natura 2000 network of the European Union. This park was under great pressure, being relatively close to large cities and population centres, with infrastructure and facilities constructed prior to various environmental protection regulations entering into force. Therefore, it was necessary to align Algeciras Bay development to the protection of the natural wealth of Los Alcornocales Park.

### ***8.3.3 Detailed description***

Improving communications between the Bay of Cádiz and Algeciras Bay has always been one of the policy priorities of the Government of Andalucía. Thus, the A381 was a priority in both the national Infrastructure Master Plan of 1993-2007 and in the Infrastructure Master Plan for Andalucía of 1997-2007 and raised their integration into the Trans-European Transport Network. To this end, the Convention of 1994 between the region and the state opted for two high-capacity corridors: the A381 and the national N340. These were made in order to structure and unite the province of Cádiz and integrate it into the Trans-European Transport Networks, whilst considering the strategic importance of the Bay of Algeciras as a hub of communication between two continents.

In June 1994, a cooperation agreement was signed between the Ministry of Public Works and the Public Works and Transport Department of the Government of Andalucía, corresponding to the construction of this highway. The Department of Public Works, choosing between 53 alternatives, decided on the duplication of the county road C440 between Jerez and Los Barrios. Following elaboration of the projects for the eight stretches and the subsequent calls for works, construction was commenced by the public company GIASA (Andalucía Infrastructure Management).

The first phase of this highway was funded within the Andalucian regional CSF. Subsequently, this action was classified as a major project approved by the Commission Decision of 17 May 2002 and joined the Integrated Andalucía Operational Programme of 2000-2006, financed by the Junta de Andalucía (30 percent) and the EU through the ERDF (70 percent) (Table 23).

**Table 23: Financing the A381**

STRETCH	INVESTMENT (millions of €)	LENGTH (km)
0	24.30	9.0
I	12.02	6.5
II	26.34	8.5
III	34.68	11.5
IV	107.61	17.8
V	125.75	16.5
VI	77.14	11.0
VII Los Barrios	23.47	7.0
<b>Total work</b>	<b>431.31</b>	<b>87.8</b>
Compensatory measures	6.21	
Landscape restoration	9.86	
<b>Total investment</b>	<b>447.38</b>	<b>(313.16 ERDF)</b>

Source: Public Work and Transport Department (Andalucian Government).

Drafts of necessary measures were made in order to eliminate or reduce the damage that the new highway could potentially produce in its integration into the landscape of Los Alcornocales Natural Park, flora and fauna of what is one of the major ecological reserves in Europe. To this end, a collaboration agreement with the Doñana Biological Station (part of the National Research Council) was established, with the support of the Environment Department of the Junta de Andalucía, which resulted in the inclusion of a comprehensive set of proposals in the Environmental Impact Statement (EIS).

The requirements set out in the EIS assumed a series of adjustments to the layout and design of the highway in order to achieve the optimum balance between the natural environment and the projected route. Thus, it contained two groups of actions:

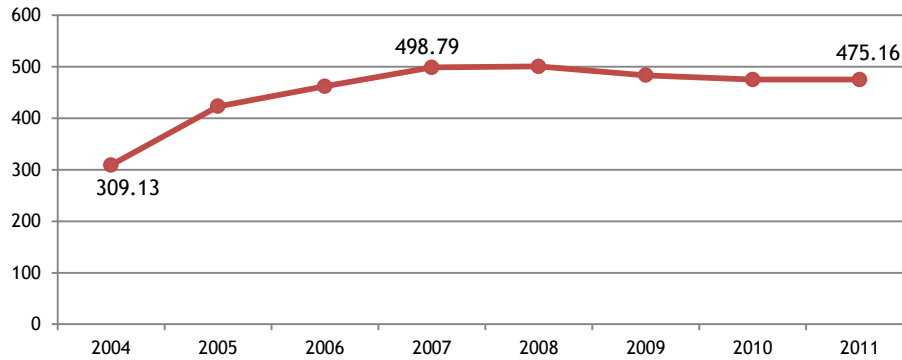
- In the first place, preventive and remedial action of environmental impact was taken, caused by the construction of the motorway as, for example, narrowing of the medium to reduce the area occupied. Another measure was the emplacement of a metal mesh fencing to prevent access by animals. There was also construction of ramps with grids to facilitate and protect the passage of wildlife, restoring creeks, installing screens or landscape restoration.
- In the second place, an ambitious set of actions to correct the diffuse impacts was contained in the 1998 Countervailing Program. These measures, unlike preventive actions, were designed to reinforce or strengthen and most sensitive parts of the ecosystem. This programme included a series of measures in the short and medium term to ensure the recovery and conservation of the natural values of the affected territory. They include recovery measures for the imperial eagle and Iberian deer, habitat improvements for otters and bats, and the creation of botanical gardens.

### **8.3.4 Achievements**

The commissioning of the highway enabled the removal of a barrier to the development of the region and the implementation of the Infrastructure of the 1997-2007 Infrastructure Master Plan for

Andalucía, which considered this to be a large-capacity priority axis. The A381 was of key importance in improving the competitiveness of the Port of Algeciras, as well as its connection with the rest of the Iberian Peninsula and Europe. The average volume of traffic that uses the A381 has increased by over 50 percent since the conclusion of the work (Graph 10).

**Graph 10: Vehicles km / Year A381 (millions)**



Source: Own elaboration with data from the Ministry of Public Works and Transport.

This increase was consistent with improvements in road safety, which has resulted in a reduction in the number of accidents on the road to the port.<sup>35</sup> Moreover, significant economic benefits can be seen for municipalities on the route of the highway, for example the reactivation of the Bay shipyard which has been a major source of job creation in the area. In fact, according to a study by Acosta *et al.* (2009), in 2007 the activity of the terminal port of Algeciras generated more than 7,500 direct jobs and approximately 10,000 indirect jobs,<sup>36</sup> and even generated over 250 new jobs in 2010 in a context marked by the economic crisis.

Consequently, the Port of Algeciras Bay has become the first national container traffic port as well as one of the most important ports in Europe. It is currently the main logistics hub of Andalucía. Improving road infrastructure was one factor which enabled the birth of the Logistics Network of Andalucía in 2010, through the merger of the management companies of the Logistics Activities Zone (LAZ) Bay of Algeciras, the Centre Transport of Goods (CTM) of Seville and of the Córdoba Logistics Park. This new partnership will promote and manage the coordinated and complementary logistics of the 11 areas in the Infrastructure Planning for the Sustainability of Transport in Andalucía (PISTA), including Algeciras Bay which is at the forefront.

Moreover, the environmental measures presented in the project have become one of the main hallmarks of the highway, making it a paradigmatic example of sustainable development (Table 24). The approach of its design, the work performed and the compensatory measures have improved transverse permeability for wildlife, largely eliminating the risks of abuse present in the old road and facilitating the passage of animals through the designed corridors. To this, the defence and even the recovery of endangered species must be added. These and other

<sup>35</sup> According to information provided by the Port Police, in 2010 there were 23 traffic accidents, 47 percent less than in 2009 when the total was 49, continuing the downward trend of the previous five years.

<sup>36</sup> Specifically, Acosta *et al.* (2009) estimate that in 2007, 24,569 total jobs were generated, 30 percent of which were direct jobs, 40.9 percent indirect jobs and 29.1 percent induced jobs, generating wages and salaries amounting to €707 million. This contribution represents 5.2 percent of total employment in the province of Cádiz and 9.2 percent of GVA provincial.

environmental measures led to the A381 being awarded the Global Road Achievement Award in the category of 'Environmental Integration' by the International Road Federation (IRF) in 2004.

**Table 24: Major landscape restoration and compensation measures**

<b>WATER RESOURCES:</b> Specific actions to support populations of otters in Los Alcornocales Natural Park and its surroundings.	Ten steps of otters were located at the intersections of the A381, N340 and local roads, situated in the nature reserve and their immediate environment.
<b>POWER LINES AND FAUNA:</b> Classified as dangerous lines to protect wildlife.	Dismantling the old mesh and replacing with 200-16-30 mesh type, with total length of 10.3 kilometres. 21 bat roosts built. Rabbit Recovery Plan applied by improving their habitat (8 ha Seed), permanent fencing (2,300 m) and setting loose (2,000 rabbits).
<b>RESEARCH STUDIES ON SENSITIVE MEDIA:</b> Studies to increase awareness of the unique ecosystems of the Natural Park and its surroundings.	The emergence of a new species of caddis flies confirmed, ( <i>Allogamusgibraltarius</i> ) samples collected and are being analysed to determine the appearance of 6 new species of mayflies and 4 of stoneflies.
<b>RESEARCH AND MONITORING STUDIES ON SENSITIVE SPECIES:</b> Studies conducted on the development and quality of habitats of endangered species to improve their surroundings.	Mapping of quality deer habitat in the Natural Park and surrounding areas for the purpose of establishing areas of refuge and security brokers. Study quality monitoring and habitat for otter, eagle, vulture, golden eagle, osprey and red kite. Lynx recovery studies. Systems Monitoring and bats census.
<b>BOTANICAL GARDENS:</b> Park provided with a network of public spaces and research centres.	The execution of the Ethno botanical Garden 'El Risco' with an area of 8.96 ha, combining plant genetics and scientific outreach, ethnographic and historical conservation and research activities.
<b>INFORMATIVE MEASURES AND ENVIRONMENTAL EDUCATION:</b> Adaptation and development of a network of facilities for public use and environmental education areas.	Includes various activities such as publishing brochures, posters, organising environmental education courses, designing guided tours, publications, etc., undertaken throughout the whole year.
<b>VEGETATION AND HABITAT RESTORATION PUBLIC USE AND INSTALLATION:</b> Aims to mitigate the effects of the construction of new infrastructure on ecosystems of great value.	Replanting over 120 ha of forest. Restoration of banks (16 sections Barbate river, 12 of the Alamo river, 2 of the Almodóvar river, 14 of the Rocinejo river and 6 of the river Alberite).

### 8.3.5 Added Value

Construction of the A381 was not raised as an isolated action, but as an element of the communication system of a medium-and-long-haul area, which included other initiatives, for example the transformation and upgrading of the N340 road. It was designed to generate a road network that would enable the connection between the Bay of Cádiz, Jerez and Algeciras Bay, deploying traffic on two axes, the A381 and the N340, which features high-capacity and differentiated functionality, interrelated by connections located outside the scope of existing protected areas in the environment.

Moreover, the uniqueness of this highway is endorsed as the model of a new generation of infrastructure. The Public Works and Transport Department of the Government of Andalucía has implemented management procedures that incorporate environmental quality as one of the priority objectives, both in the drafting of projects and in the execution of the works. The basic principles have mainly focused on correcting environmental prevention, seeking specific knowledge of environmental conditions and their ability to host planned activities and carrying out continuous monitoring of the different phases of performance.

Environmental aspects demanded the implementation of a new methodology, which included involving environmental technicians in equipment works, scientists from the Biological Station of Doñana, public works technicians and representatives of agencies. This enabled the development of the various construction activities in alignment with environmental education.

Additionally, compensatory measures were implemented, with the A381 in the role of a European pioneer in the implementation of a programme of measures on sensitive species and habitats, which developed studies and actions on the flora and fauna of the nature reserve in compliance with the Habitats Directive. In this sense, it should be highlighted that a comprehensive environmental education project was designed for residents, attempting to extend environmental awareness and to also share the findings of studies with the direct beneficiaries.

### **8.3.6 Conclusions**

The A381 is a model and reference for the reconciliation of a territory's economic development and for the protection of the natural environment. The firm commitment of the Government of Andalucía to a complex infrastructure has become one of the best examples of a sustainable development policy. The European authorities have endorsed the measures outlined in the project, making them an example for future similar actions in Europe.

## **8.4 Andalusian Forest Plan (AFP)**

### **8.4.1 Summary description**

The Andalusian Forest Plan (AFP) was approved unanimously by the Parliament of Andalucía in 1989, with the aim of 'making compatible the maintenance and increase of the multiple production of Andalusian forests with the protection and restoration of the natural environment, in line with the economic and cultural development of Andalusian society'.

The investments in the AFP in the 1990-2007 period totalled €4,317 million. For the 2008-2015 period, €2,444 million of public investment are envisaged, of which 45 percent will come from European funds.

### **8.4.2 Underlying problem and context for the project**

The severe problems of erosion and desertification, together with the persistence of ecosystems at an advanced stage of degradation, represent major environmental challenges for Andalucía.

The management of Mediterranean forest has to cope with the threat posed by their high vulnerability to the aggression of the natural agents - fires, torrential rain or pests - as well as overexploitation and inadequate resource management. In Andalucía, about 4.6 million hectares of land are suitable for forestry, that is, those rural lands that are not appropriate for permanent and profitable agricultural crops. Nevertheless, only about 2.4 hectares are forested, while the rest of the land shows little vegetation and erosion including soil loss, rivers overflowing, etc.

These terrains are located in mountainous or deprived areas, with rural-based subsistence economies and with high seasonal unemployment. Regarding this issue, the Mediterranean forest is characterised by a high level of biodiversity and multi-functionality, both determined by the direct benefits resulting, as well as for the various functions provided from the ecological, economic and



social standpoint. Therefore, it was necessary to support the conservation and enhancement of forest areas with a sustainable development strategy for the rural areas.

More recently, conservation and forest regeneration is also being considered from the perspective of the combating against climate change, since forests act as sinks for CO<sub>2</sub> and help produce biomass as a renewable energy source.

### **8.4.3 Detailed description of the project**

The AFP embraced the following ten objectives:

1. Combat desertification and the preservation of water resources, soils and the vegetation cover.
2. Protect ecosystems of unique natural value and endangered species, while maintaining ecosystems in order to preserve biodiversity.
3. Restore degraded forest ecosystems.
4. Contribute to protection against fires, pests and forest diseases.
5. Properly allocate land use - for agricultural or forestry purposes - while maintaining its biological potential and production capacity.
6. Rational use of renewable natural resources and increase their production.
7. Contribute to the improvement of industrialisation and commercialisation of forest products.
8. Reconcile social, recreational and cultural use with the preservation of forests.
9. Generate socioeconomic conditions that prevent the uprooting of rural communities, supporting their development.
10. Diversify the rural landscape through the conservation and recovery of forest sites in agricultural crop areas.

The issue to which more attention has been devoted is the restoration of damaged ecosystems and the fight against erosion and desertification, with €1,118 million of public investment in the 1990-2006 period. In this activity, authorities have used an integrated approach, leveraging synergies resulting from reforestation, forest restoration, silvicultural tasks and hydrology projects. Moreover, a programme was developed to help the forestation of agricultural land, directed at private owners (70 percent of the Andalusian forest area is privately held).

In second place, efforts in environmental protection against wildfires invested more than €1,026 million in the 1990-2006 period. The main tool in this area is the INFOCA Plan approved in 1995. The INFOCA develops a specialised prevention programme which includes the organisation and protection of forest areas by preventive silviculture, the control of farming activities, the articulation of administrative and police systems, the development of monitoring, as well as the civic consciousness and education, the spread of preventive standards and citizen collaboration.

As part of the INFOCA Plan, a device operates in a coordinated way for the prevention and extinction of fires. This device involves a highly professional staff, a large fleet of terrestrial and aerial means, and uses new technologies in order to optimise resource management.

Regarding the defence of the natural environment against pests, diseases and polluting agents, great progress has been made in the research, selection and implementation of the most effective methods to ensure the health and biological balance of forests. For this purpose, about €31 million were spent in the period 1990-2006. Other action includes the declaration of new Protected Natural Areas and their interconnection through ecological corridors.

Likewise, several actions have aimed at better planning, development and management of renewable natural resources for their preservation and sustainable use. For this purpose, €878 million were spent in the period 1990-2006. In this respect, actions included management, protection and preservation of the wild fauna and flora (for example, the programme for the recovery of the Iberian lynx), piscicultural management (fish aquaculture) and hunting activities, the organisation and enhancement of forest production and cattle. Finally, the maintenance of rural paths and other activities were developed for rural areas. Regarding the use of natural resources, investments in facilities and amenities were made for tourism, recreational and cultural purposes.

Furthermore, education and sensitisation programs were developed to encourage responsible behaviour regarding the natural environment. A good example is the programme called 'Look after your forests', and specifically the volunteer environmental programme and school campaign 'Grow your own tree', attended by 526,411 students in 1994-2006.

#### **8.4.4 Outputs and achievements**

The main achievements of the AFP include:

- In the first twenty years of the AFP, reforestation projects covered an area exceeding 215,000 ha, and there was reforestation over 150,000 ha in marginal agricultural land.
- Silvicultural procedures have been established for the preservation and improvement of the forest mass and for preventing fire against forest ecosystems, for a total amount of 1,009,185 ha.
- Despite the efforts in disseminating information about the negative effects of forest fires, increased police and judicial pressure, as well another actions relating to prevention, there was no significant decrease in the number of fires.
- This fact is explained by the social and environmental changes, the shift in land use and the very low productive value of the forests in the current market, which discourages investment in fire prevention. Therefore it increases the probability of ignition and fire propagation. However, a decrease in the average number of hectares affected by fire was produced and to a certain extent can be attributable to the INFOCA Plan device, which has helped gain a better understanding of the causes of fire and determine liabilities. In this regard, it should be noted that around 95 percent of the fires caused each year are due to human actions (of negligent, accidental or intentional nature).
- The integral plans fighting against pests have enabled control over preceding levels of

infestation.

- Positive results are being achieved in the preservation of biodiversity, which since 2000 has become a key factor in the Andalusian environmental policy.
- It has achieved a remarkable increase in the area under the protection regime during the term of the plan, which has increased from a rate lower than one percent to include almost 20 percent of the Andalusian territory. Nowadays, the majority of the forest ecosystems are under Andalusian legal protection, being embedded in the Protected Natural Spaces Network of Andalucía (PNSNA) created in 1997.
- Natural areas have been equipped with a remarkable network consisting of 850 major facilities and infrastructure for public and social use, which include visitor centres, information points, paths and viewpoints.
- A recovery and management programme has been developed for cattle routes, adapting them to new uses, and therefore valorising public assets up to 33,000 km.

#### **8.4.5 Value-added**

At the time of its adoption in 1989, the AFP was a pioneering initiative. The AFP has enabled significant progress in the planning, development and management of the renewable natural resources of Andalucía, seeking their preservation and sustainable use. Given the level of economic development and budget constraints of Andalucía, the environmental protection effort performed by the AFP could not have been undertaken without EU funds. The AFP has been financed with contributions from the ERDF, EAFRD and the EAGGF Guidance, with co-financing from the Regional Ministry of Environment, the Ministry of Agriculture and Fishing, and the Ministry of Environment.

The development of the AFP benefited from the creation in 1994 of the Regional Ministry of Environment, which integrated all the management and administration of the Andalusian environment into a single branch. Likewise, the AFP actions benefited from their integration and articulation into a broader context of environmental planning, represented by the Environmental Plans of Andalucía, and the regional and economic planning of Andalucía - implemented through the Andalucía's Territorial Plan, Andalucía's Economic Plan and the Regional Development Plan.

#### **8.4.6 Sources of finance**

The initial timescale of the AFP was from 1990 to 1993, being part of the Andalusian financial plans within the EU Support Framework for Spanish Objective 1 regions. The contribution from the EAGGF Guidance and the ERDF was set respectively at 50.3 percent and 55 percent of the public expenditure, the ERDF contribution being €30.41 million. While the Operational Programme included actions to be taken in the period 1990-1993, due to the long periods of vegetation evolution a period of 60 years was chosen for its global development, including a decennial phased implementation and compliance reviews every five years.

The actions referred to in this Operational Programme were financed by ERDF funds and EAGGF-O, charged to the Andalucía Regional sub-frame. The total public expenditure amounted to €55.29 million.

**Table 25: Public expenditure and EU aids by programme and concept in all periods**

<i>Period</i>	<i>Programme</i>	<i>Concept</i>	<i>Public expenditure (in million € in 2000)</i>	<i>EU aid (in million € in 2000)</i>
89-93	<i>ERDF Andalusian Forest Plan OP</i>	Reforestation	38.05	20.93
		Hydrological works	7.38	4.06
		Forest road network	4.98	2.74
		Forests public use	4.88	2.68
		<b>Total</b>	55.29	30.41
94-99	<i>Cohesion Fund</i>	Control of erosion and restoration of degraded forests	58.72	49.85
<i>Period</i>	<i>Programme</i>	<i>Concept</i>	<i>Total investment (in million € in 2000)</i>	
00-06	<i>ERDF Andalucía ROP</i>	Control of erosion, desertification and restoring degraded ecosystems	3,392	
		Sustainable use of renewable resources, processing and commercialisation of forests products	2,750	
		Forest fire monitoring	4,703	
		Preservation and recovery of biodiversity	2,191	
		Research, environmental education and cooperation	3,467	
		<b>TOTAL</b>	16,503	

Source: Own elaboration with Operational Programme data

The first amendment to the AFP (1997-2001) incorporated the new prevailing guidelines, especially a greater integration of forestry, environmental and rural development goals. The second amendment to the AFP (2003-2007) included citizen demands that had been raised so far. Finally, the third amendment to the AFP (2008-2015) is accompanied by a Sustainability Report and an Environmental Report.

#### **8.4.7 Management and monitoring issues**

The AFP was launched with a large consensus, and it included the involvement of a large number of institutions and social sectors for its development, such as universities, public administrations, trade unions, private companies, environmental organisations and individual citizens.

The planning and management of AFP actions have been based on several studies and research programmes - monitoring studies on vegetation stress, detailed cartography of natural areas, monitoring of land use and large ecosystems, etc.

The term of the Plan was established as 60 years, in order to ensure its permanence over time and in accordance with the length of natural cycles of vegetation. Nevertheless, the execution will be carried out in decennial phases, with compliance reviews every five years. Moreover, there is now a requirement to produce annual reports in order to reflect the degree to which the objectives have been fulfilled, the amount of investment made and, if appropriate, the necessary actions to fix deviations detected.

Three adaptations of the AFP have been produced for the periods 1997-2001, 2003-2007 and 2008-2015. Each adaptation was preceded by an extensive process of review and consideration of the forest situation, as well as a social debate with the participation of all actors involved. Regarding the AFP management, it should be noted that the investments made in 1990-2007 exceeded the initial plan by 0.8 percent.

### **8.4.8 Conclusions**

In more than 20 years since it came into effect, the AFP has enabled efficient forest management. This plan has combined the valorisation of the multiple use and exploitation of the Andalusian Mediterranean forest, with the preservation and enhancement of its biodiversity, as well as the generation and maintenance of goods and services which benefit the whole of society.

## 9. ANNEX II - STRUCTURE OF PROGRAMMES 1989-2013 IN ANDALUCÍA

**Table 1: Andalucía ROP 1989-93, Financial allocations and actual expenditure**

Priority	Total initial allocation (I)	Total actual expenditure allocation (F)	Total public (€)												Private	
			EU						Domestic						Private (I)	Private (F)*
			ERDF (I)	ERDF (F)	ESF (I)	ESF (F)	EAGGF (I)	EAGGF (F)	Nat. (I)	Nat. (F)	Reg. (I)	Reg. (F)	Other dom. (I)	Other dom. (F)		
1.- Improved communications	n.a.	3.236,640	n.a.	1.686,612	n.a.	n.a.	n.a.	n.a.	n.a.	1.242,483	n.a.	307,546	n.a.	n.a.	n.a.	n.a.
2.- Industry, crafts sector and business services	n.a.	639,267	n.a.	370,384	n.a.	n.a.	n.a.	n.a.	n.a.	126,675	n.a.	116,825	n.a.	n.a.	n.a.	n.a.
3.- Tourism	n.a.	97,774	n.a.	50,449	n.a.	n.a.	n.a.	n.a.	n.a.	0,082	n.a.	47,243	n.a.	n.a.	n.a.	n.a.
4.- Agriculture and rural development	n.a.	141,425	n.a.	77,783	n.a.	n.a.	n.a.	n.a.	n.a.	0,000	n.a.	63,641	n.a.	n.a.	n.a.	n.a.
5.- Infrastructure to support economic activity	n.a.	840,339	n.a.	443,219	n.a.	n.a.	n.a.	n.a.	n.a.	205,953	n.a.	191,167	n.a.	n.a.	n.a.	n.a.
6.- Human resources	n.a.	70,400	n.a.	38,720	n.a.	n.a.	n.a.	n.a.	n.a.	0,000	n.a.	31,680	n.a.	n.a.	n.a.	n.a.
7.- Technical assistance	n.a.	9,345	n.a.	7,011	n.a.	n.a.	n.a.	n.a.	n.a.	0,000	n.a.	2,334	n.a.	n.a.	n.a.	n.a.
<b>TOTAL</b>	<b>n.a.</b>	<b>5.035,189</b>	<b>n.a.</b>	<b>2.674,177</b>	<b>n.a.</b>	<b>n.a.</b>	<b>n.a.</b>	<b>n.a.</b>	<b>n.a.</b>	<b>1.575,193</b>	<b>n.a.</b>	<b>760,436</b>	<b>n.a.</b>	<b>n.a.</b>	<b>n.a.</b>	<b>n.a.</b>

**Table 2: Andalucía ROP 1994-99, Financial allocations and actual expenditure**

Priority	Total initial allocation (I)	Total actual expenditure allocation (F)	Total public (€)												Private	
			EU						Domestic						Private (I)	Private (F)*
			ERDF (I)	ERDF (F)	ESF (I)	ESF (F)	EAGGF (I)	EAGGF (F)	Nat. (I)	Nat. (F)	Reg. (I)	Reg. (F)	Other dom. (I)	Other dom. (F)		
1.- Territorial integration	2.646,425	2.641,675	1.630,786	1.643,382	n.a.	n.a.	n.a.	n.a.	685,961	643,182	329,668	583,436	0,000	0,000	n.a.	n.a.
2.- Development of economic tissue	249,442	321,856	176,353	229,540	n.a.	n.a.	n.a.	n.a.	20,728	28,306	47,775	64,010	4,586	0,000	n.a.	n.a.
3.- Tourism	171,749	202,629	107,346	126,636	n.a.	n.a.	n.a.	n.a.	0,353	8,463	64,049	67,529	0,000	0,000	n.a.	n.a.
5.- Fisheries	3,926	6,119	2,847	4,435	n.a.	n.a.	n.a.	n.a.	1,079	0,000	0,000	1,684	0,000	0,000	n.a.	n.a.
6.- Infrastructure to support economic activity	1.841,661	2.464,977	1.204,304	1.645,188	n.a.	n.a.	n.a.	n.a.	303,865	449,266	333,492	370,523	0,000	0,000	n.a.	n.a.
7.- Human resources	235,856	339,061	171,003	245,785	n.a.	n.a.	n.a.	n.a.	15,341	12,338	49,512	80,937	0,000	0,000	n.a.	n.a.
8.- Technical assistance, monitoring and reporting	17,819	21,241	13,812	16,459	n.a.	n.a.	n.a.	n.a.	0,000	0,000	4,007	4,783	0,000	0,000	n.a.	n.a.
<b>TOTAL</b>	<b>5.166,878</b>	<b>5.997,558</b>	<b>3.306,452</b>	<b>3.911,424</b>	<b>n.a.</b>	<b>n.a.</b>	<b>n.a.</b>	<b>n.a.</b>	<b>1.027,328</b>	<b>1.141,556</b>	<b>828,503</b>	<b>1.172,903</b>	<b>4,586</b>	<b>0,000</b>	<b>n.a.</b>	<b>n.a.</b>

**Table 3: Andalucía ROP 2000-06, Financial allocations and actual expenditure**

Priority	Total initial allocation (I)	Total actual expenditure allocation (F)	Total public (€)												Private	
			EU						Domestic						Private (I)	Private (F)*
			ERDF (I)	ERDF (F)	ESF (I)	ESF (F)	EAGGF (I)	EAGGF (F)	Nat. (I)	Nat. (F)	Reg. (I)	Reg. (F)	Other dom. (I)	Other dom. (F)		
1.- Improvement of competitiveness and employment, and development of production structures	826,640	1.081,835	595,808	781,865	n.a.	n.a.	n.a.	n.a.	19,402	0,000	211,431	254,476	0,000	0,000	n.a.	n.a.
2.- The knowledge society (innovation, R&D, the information society)	273,800	308,208	205,350	230,171	n.a.	n.a.	n.a.	n.a.	1,251	0,000	67,199	47,111	0,000	0,000	n.a.	n.a.
3.- Environment, natural habitats and water resources	2.463,518	2.395,578	1.789,268	1.753,039	n.a.	n.a.	n.a.	n.a.	589,084	11,615	85,166	21,574	0,000	0,000	n.a.	n.a.
4.- Educational infrastructure and strengthening of technical and vocational teaching	268,843	259,326	188,190	194,494	n.a.	n.a.	n.a.	n.a.	0,000	0,000	80,653	64,831	0,000	0,000	n.a.	n.a.
5.- Local and urban development	465,921	606,305	338,096	442,801	n.a.	n.a.	n.a.	n.a.	18,589	0,000	109,236	163,505	0,000	0,000	n.a.	n.a.
6.- Transport and energy networks	4.167,314	5.174,646	2.632,800	3.205,284	n.a.	n.a.	n.a.	n.a.	1.163,572	0,000	367,900	880,720	3,042	0,000	n.a.	n.a.
9.- Technical Assistance	23,098	25,634	18,479	20,507	n.a.	n.a.	n.a.	n.a.	0,000	0,000	4,620	5,127	0,000	0,000	n.a.	n.a.
<b>TOTAL</b>	<b>8.489,134</b>	<b>9.851,533</b>	<b>5.767,990</b>	<b>6.628,162</b>	<b>n.a.</b>	<b>n.a.</b>	<b>n.a.</b>	<b>n.a.</b>	<b>1.791,899</b>	<b>11,615</b>	<b>926,203</b>	<b>1.437,344</b>	<b>3,042</b>	<b>0,000</b>	<b>n.a.</b>	<b>n.a.</b>

**Table 4: Andalucía ROP 2007-13, Financial allocations and actual expenditure**

Priority	Total initial allocation (I)	Total actual expenditure allocation (F)	Total public (€)												Private	
			EU						Domestic						Private (I)	Private (F)*
			ERDF (I)	ERDF (F)	ESF (I)	ESF (F)	EAGGF (I)	EAGGF (F)	Nat. (I)	Nat. (F)	Reg. (I)	Reg. (F)	Other dom. (I)	Other dom. (F)		
1.- Knowledge economy	375,345	68,952	300,276	55,162	n.a.	n.a.	n.a.	n.a.	0,000	0,000	75,069	13,790	0,000	0,000	n.a.	n.a.
2.- Entrepreneurial development and innovation	1.556,648	387,227	1.089,653	309,782	n.a.	n.a.	n.a.	n.a.	254,096	11,763	212,898	65,682	0,000	0,000	n.a.	n.a.
3.- Environment, natural surroundings, water resources and risk prevention	2.428,068	510,052	1.699,647	408,042	n.a.	n.a.	n.a.	n.a.	456,628	58,413	271,792	43,598	0,000	0,000	n.a.	n.a.
4.- Transport and energy	2.535,814	1.379,963	1.648,279	1.103,973	n.a.	n.a.	n.a.	n.a.	410,177	137,407	477,358	138,583	0,000	0,000	n.a.	n.a.
5.- Sustainable local and urban development	830,963	208,946	581,674	167,157	n.a.	n.a.	n.a.	n.a.	23,263	0,607	78,930	33,761	147,096	7,422	n.a.	n.a.
6.- Social infrastructure	402,748	121,461	322,199	97,169	n.a.	n.a.	n.a.	n.a.	0,000	0,000	80,550	24,292	0,000	0,000	n.a.	n.a.
7.- Technical assistance, communication	46,345	13,771	37,076	11,017	n.a.	n.a.	n.a.	n.a.	0,000	0,000	9,269	2,754	0,000	0,000	n.a.	n.a.
<b>TOTAL</b>	<b>8.175,930</b>	<b>2.690,372</b>	<b>5.678,804</b>	<b>2.152,300</b>	<b>n.a.</b>	<b>n.a.</b>	<b>n.a.</b>	<b>n.a.</b>	<b>1.144,165</b>	<b>208,190</b>	<b>1.205,865</b>	<b>322,460</b>	<b>147,096</b>	<b>7,422</b>	<b>n.a.</b>	<b>n.a.</b>

## 10. ANNEX III: REPORTED ACHIEVEMENTS

### 10.1 (1994-1999) Andalucía Regional OP

Priority	Name of the indicator	Unity	Target	Reported Achievements	
1	Integration and territorial articulation	Telecommunication centres	No.	280	609
		Permanent direct jobs	No.	11,932	10,228
		Direct jobs created	No.	27,863	23,770
		Indirect jobs	No.	3,320	1,098
		Commuter stations	No.	47	43
		Daily average intensity	cars/day	41,198	40,233
		New or conditioned highway	km	98	132
		Conditioned motorway	km	280	210
		km, of widening	km	35	25
		Highways, motorways and roads	km	1,095	1,286
		Optical fibre	km	2,958	1,914
		Fishing docks	m	1,070	8,070
		Industrial buildings and warehouses	m <sup>2</sup>	6,300	6,300
		Traffic of aeroplanes	No.	154,423	128,786
		Passenger traffic	No.	12,219,952	12,091,915
		Traffic (in millions)	cars/km	398	400
		Traffic max speed	km/h	160	160
Railway track restored or renewed	km	207	252		
2	Industry, services and crafts	Direct jobs created	No.	5,216	2,243
		Indirect jobs created	No.	10,531	10,902
		Jobs retained by local aid investment	No.	400	10,819
		Firms created	No.	401	152
		Cultural/educational installations restored	No.	2	2
		Sports installations	No.	3	3
		New electric line	km	5	5
		Collectors installed	m	14,060	14,560
		Beneficiary firms	No.	2,488	1,865
		Projects (large firms)	No.	14	18
		R&D department created (large firms)	No.	4	3
		Improved road network	km	25	30
		Industrial land	ha	284	138
		Urbanisation of land in the PTA to introduce auxiliary industries	m <sup>2</sup>	106,000	114,000
Induced investment	MPTas.	6,875	6,612		
3	Tourism	Actions lighting improved heritage tourist use	No.	23	286
		Special tourist accommodation	Places	15	13
		Rehabilitated building architectural interest	No.	45	26
		Rehabilitated building heritage tourist use	No.	9	189
		Direct Jobs created	No.	3,276	368
		Indirect Jobs created	No.	2,632	155
		Public space reconstructed of architectural interest	m <sup>2</sup>	3,421	6,110
		Artistic heritage reconstructed	m <sup>2</sup>	21,919	40,273
		Tourist offices built or renovated	No.	22	18
		Reconstruction of artistic heritage	m <sup>2</sup>	1,160	1,160
		Visitors of museum	No.	200,000	370,000
Visitors per year of stands	No.	74,000	990,000		



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Priority	Name of the indicator	Unity	Target	Reported Achievements	
5	Fishing	Research campaigns at sea	No.	36	36
		Report Scientific-technical produced	No.	48	48
		Oceanographic sampling from ships	No.	48	48
6	Infrastructure to support economic activities	Riverbed recovered	km	68	144
		Conduits	km	1,649	1,574
		Sewage treatment plant constructed	No.	35	50
		Regulation deposits	No.	39	39
		Reservoirs	No.	26	25
		Jobs created (temporal)	No.	180	30
		Direct jobs created	No.	7,060	4,487
		Indirect jobs created	No.	3,409	1,862
		Beneficiary firms (energy)	No.	37	15
		Channels and conditioning	km	1,055	1,086
		Research groups	No.	1,850	1,850
		Inhabitants benefited from the assessment of pollution	No.	5,000,000	5,000,000
		Inhabitants benefited from the treatment of MSW	No.	5,675,842	5,675,842
		Population benefiting from pollution evaluations	No.	5,000,000	5,000,000
		Gas pipeline installed (new network)	km	521	460
		Gas network built	km	200	666
		Grants for installations renewable energy: solar	No.	5,119	5,187
		Dams constructed and improved	No.	44	44
		Network of supply	km	743	704
		Reforestation	ha	1,594	1,594
Beneficiated universities	No.	56	10		
Controlled dumps	No.	1	2		
7	Assessment of Human Resources	Classrooms	No.	80	91
		Libraries	No.	16	21
		Training centres	m <sup>2</sup>	3,500	3,500
		Directs jobs created	No.	2,131	3,595
		Indirect jobs created	No.	2,040	2,437
		University classrooms created	No.	221	206
		Cycles of vocational education medium level	No.	663	732
		Cycles of vocational education high level	No.	228	389
		New University centres built	No.	13	10
		Infantile Education places created	No.	1,050	1,338
		Primary Education places created	No.	2,550	3,750
		University residence places created	No.	188	188
		University places equipped	No.	24,310	30,372
		University places created	No.	210	272,975
Illiteracy rate adults	No.	2	2		

## 10.2 (2000-2006) Andalucía Regional OP

Priority	Indicator	Unity	Target	Reported Achievements	
1	Improving competitiveness and development of business production	Support for the creation	No.	2,711	2,937
		Aid for modernisation / expansion	No.	13,031	14,773
		Campaigns	No.	155	161
		Jobs created	No.	41,797	49,187
		Jobs retained	No.	279,404	316,757
		Business expanded or restructured	No.	9,006	11,870
		Beneficiary Companies	No.	1,283	1,411
		Beneficiary companies (repayable aid)	No.	169	212
		Beneficiary companies (bonus interest)	No.	5,098	5,266
		Beneficiary companies (guarantee)	No.	1,300	1,347
		Beneficiary companies (loans)	No.	9	9
		Started Business (or consolidated)	No.	2,316	2,729
		Occupancy rate	%	80	81
		Increased tourism revenues	%	23	24
		Exchange of experiences	No.	4,007	5,069
		Private investment encouraged	m€	8,165	10,777
		Trade missions	No.	10	10
		Number of companies assessed	No.	3,400	3,546
		Publications and studies financed	No.	460	470
		SMEs that export for first time	No.	180	185
		Conditioned surface	M2	5,500,000	5,471,662
Units under appointment	No.	570	665		
2	Knowledge society (innovation, R & D, information society)	Applications installed	No.	370	382
		Centres benefited	No.	45	47
		Centres established (technology centres, universities etc.,)	No.	1	1
		Centres involved	No.	84	100
		Centres renewed (technology centres, universities etc.,)	No.	43	48
		Contact companies / centres	No.	19,000	19,379
		Jobs created	No.	434	455
		Jobs retained	No.	800	877
		Equipment installed to expand the network of environmental Information telematics	No.	23,630	23,630
		Installed equipment, cost over 0,5 million euro (technology Centres, universities, etc.,)	No.	700	717
		Research groups and units funded coordinated	No.	2,100	2,109
		Researchers involved	No.	18,500	18,583
		Installed licenses for telematics network expansion environmental Information	No.	620	620
		Number of calls answered	No.	37,000,000	38,226,907
		No. of publications	No.	15	17
		Plots updated	No.	958,911	969,102
		Patents	No.	800	800
		Patents registered by the companies involved	No.	270	281
		Collaborative R&D financed	No.	550	575
		Networks created in public administration	No.	1,950	2,017
		Servers installed to expand the network of environmental information telematics	No.	100	100
		Surface updated	Has	3,794,133	3,794,133
		Surface orthophotographed	Has	1,300,000	1,423,553
Users of created networks	No.	480,000	483,057		

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Priority	Indicator	Unity	Target	Reported Achievements	
3	Environment, natural environment and water resources	Preparing and / or cleaning of channel	km	3,200	3,122
		Recovery and restoration actions	No.	78	74
		Actions in safety and flood prevention	No.	75	76
		Proceedings of surveillance and control of air quality and coastal waters	No.	500	483
		Pumping singular	No.	1	1
		Regenerated dune field	M2	510,000	510,148
		Purification capacity	M3/year	4,900,000	5,462,206
		Collector (diameter > = 1.2 meters)	km	50	51
		Solid Waste Containers	No.	850	752
		Water tanks built or improved	No.	19	25
		Decreased number of risk points	No.	61	66
		New or expanded WWTP	No.	65	72
		Emissaries	km	65	79
		Employment created during maintenance	No.	1,845	2,058
		Jobs created in the construction phase	No.	88,926	42,602
		Channelling	km	394	387
		Equipment acquired	No.	469	447
		Control stations air pollution / noise / water	No.	279	279
		Studies and plans made	No.	250	246
		Residents benefit from fittings / channelling	No.	14,000,000	14,277,826
		Increased to supply treated water (Water treatment, desalination)	M3	233,488,000	233,488,146
		Increasing the capacity of dammed water	Hm3	1,028	918
		Increased capacity of water reservoirs	M3/year	303	303
		Increased economic activities m3/year supply	No.	3,000	3,033
		Public use infrastructure constructed and / or improved	No.	5	6
		desalination plants	No.	3	2
		Water treatment plants	No.	16	20
		Population benefiting from improved supply networks	Hab	4,768,000	3,711,508
		Population benefiting from new distribution networks	Hab	6,500,000	8,111,667
		Dams built	No.	4	3
		Clean points	No.	10	10
		Supply networks new economic activities	km	196	130
		Supply networks new and / or improved urban	km	1,300	1,553
Supply networks renovated or improved	km	127	126		
Improved irrigation networks / restarted	km	800	733		
Welfare systems, constant monitoring and measurement, water	No.	180	180		
Reforested or affected area of HIV prevention, protection and regeneration	Tm/year	18,500	18,480		
Area restored	Has	140,000	136,066		
Greenways	m	2,400,000	2,340,464		
41	Educational infrastructure and strengthening vocational education	Centres established (or major upgrades)	No.	110	116
		Centres renewed	No.	700	825
		Jobs created in the construction phase	No.	200	206
		Centres Equipment	No.	3,900	4,053
		School Units created / adapted	No.	2,300	2,623

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Priority	Indicator	Unity	Target	Reported Achievements	
5	Local and urban development	Access to tourist sites created	No.	697	733
		Architectural barrier removal	No.	650	660
		Actions in buildings or monuments	No.	370	368
		Centres established and assistance to host different types of collective	No.	12	14
		Health centres built and equipped	No.	15	16
		Community social service centres	No.	93	97
		Centres for Seniors funded	No.	110	115
		Rehabilitated centres	No.	240	239
		Centres renovated to host different types of collective	No.	20	23
		Creation and recovery parkland	M2	1,300,000	1,329,724
		Provisions of sanitary	No.	280	290
		New buildings, preserved and / or restored (social, cultural, etc.)	No.	32	34
		Renovated and /or preserved	M2	105,000	106,829
		Tourism and cultural buildings (new, improved, etc.)	M2	30,000	40,366
		Buildings and other infrastructure built and cultural tourism	No.	300	331
		Buildings and other cultural and tourist infrastructure rehabilitated, expanded	No.	33	44
		Employment created during maintenance	No.	82	85
		Jobs created	No.	4,250	4,467
		Jobs created in the construction phase	No.	2,980	2,934
		Jobs retained	No.	915	1,298
		Urban space freed	M2	80,000	80,000
		Reformed hospitals	No.	27	27
		Increasing the number of beds or places,	No.	410	424
		Improved cultural and tourist centres	No.	1,320	1,408
		New facilities	No.	47	47
		Number equipped libraries and / or computerised	No.	50	50
		Places rehabilitated or preserved	No.	14	15
		Population benefiting directly	No.	455,000	465,138
		Members annually funded infrastructure	No.	540,000	545,650
		Users benefit from the centres created	No.	950	982
		Renovated centre users	No.	3,500	3,678
Visitors a year	No.	9,200,000	9,947,971		

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Priority	Indicator	Unity	Target	Reported Achievements	
6	Transport and energy networks	Actions in movement area	No.	18	19
		Projects on supplies and facilities	No.	3	4
		Increased storage capacity	%	30	30
		Increased capacity and bus stations	%	12	12
		Improved motorway	km	100	103
		New motorway	km	400	446
		Accessible road	km	1,053	1,135
		New road	km	130	158
		Creation or improvement of fishing port and marina	No.	28	28
		Dam new or improved	m	1,100	1,238
		Dredged	M3	1,300,000	1,510,249
		Jobs created	No.	1,500	1,570
		Jobs created in the construction phase	No.	77,610	86,864
		Companies that benefited	No.	2,600	2,618
		Beneficiary enterprises (SMEs)	No.	2,600	2,618
		New or improved Sea port	No.	2	2
		Stations and halts	No.	25	28
		Households served by alternative energy	No.	27,000	28,747
		Increase in passenger traffic annually	%	1	1
		Increased heavy traffic	Cars/day	13,000	13,404
		Increased total traffic	Cars/day	120,000	121,153
		Safety facilities	No.	18	18
		Transportation facilities built	No.	18	21
		Private induced investment	million €	280	293.1
		Lines of high-speed rail	km	155	182
		Long preserved	km	11,000	16,509
		Long signposted	km	4,400	6,276
		Improved speed of travel	km/h	120	120
		Improvement of conventional railways	km	350	393
		Metres of roads built or refurbished communication	ml	7,500	7,978
		Abolished level crossings	No.	12	19
		Population benefiting from improved energy network (people)	No.	800,000	822,269
		Installed capacity in alternative energy	Kw	76,000	81,084
		Electricity production from renewable sources	Gwh/year	170	182
Ports and harbours improved	No.	14	18		
New berths	No.	1,300	1,394		
Red environmentally adapted	km	1,000	1,603		
Wastewater new and / or improved	km	14	16		
Time saved by number of users	h/year	6,635,861	7,029,513		
Private or port zone conditioning	M2	1,000,000	1,170,767		

### 10.3 (2000-2006) Local OP

Priority	Type	Indicator	Unity	Target	Reported Achievements
3	Impact	Jobs created in the maintenance phase	No.	-	84
		Jobs created in the construction phase	No.	-	224
	Execution	Centres and facilities for environmental education	No.	-	6
		Installations for water supply	No.	-	1
		Plants for the treatment of waste water	No.	-	1
		Treatment plants, recovery and recycling MSW	No.	-	17
		Supply urban networks new and / or improved	km	-	5
		Wastewater new and / or improved	km	-	3
		Soil recovered	m <sup>2</sup>	-	84,000
		Improved riparian area	Ha	-	2
		Area restored	Ha	-	605
		Landfills, conditioners or sealed	No.	-	4
		Greenways	m	-	12,440
	Result	Population benefiting directly	No.	-	1,490,810
Housing benefit directly		No.	-	1,538	
5	Impact	Employment created during maintenance phase	No.	-	350
		Jobs created in the construction phase	No.	-	3,498
	Execution	Conditioning (streets, roads, sidewalks, etc.)	m <sup>2</sup>	-	306,740
		Support actions for local development	No.	-	121
		Performances in buildings or monuments	No.	-	5
		Bike path	m	-	6,195
		Centres established and assistance to host different types of collective	No.	-	20
		Creation and recovery parkland	m <sup>2</sup>	-	159,231
		Surface area renewed or preserved	m <sup>2</sup>	-	5,034
		Buildings and other infrastructure built and cultural tourism	No.	-	2
		Equipment installed street furniture	No.	-	4,641
		Installations for water supply	No.	-	47
		Plants for the treatment of waste water	No.	-	12
		Treatment plants, recovery and recycling MSW	No.	-	45
		Projects sporting and / or recreational	No.	-	3
		New local road network and / or enhanced	km	-	1,273
		Supply networks new and / or improved	km	-	399
		Wastewater new and / or improved	km	-	77
		Electrical supply networks constructed or improved	m	-	52,366
		Landfills, conditioners and / or sealed	No.	-	7
	Result	Population benefiting directly	No.	-	100,478
		Users benefit from the health services	No.	-	91,419
		Visitors per year	No.	-	3,500
Housing benefit directly		No.	-	690,844	

#### 10.4 (2000-2006) R&D OP

Priority	Type	Indicator	Unity	Target	Reported Achievements
2	Impact	Jobs created	No.	-	259
		Jobs retained	No.	-	501
	Execution	Centres established (technology centres, universities...)	No.	-	5
		Centres that receive grant	No.	-	55
		Centres renewed (technology centres, universities...)	No.	-	5
		Business mobilised (Total)	No.	-	6
		Equipment R&D financed	No.	-	797
		Collaborative projects between companies and research centres	No.	-	6
		Collaborative R&D projects financed	No.	-	1,755
	Result	Induced investment on co-financed partners projects	million €	-	284

#### 10.5 (2000-2006) Competitiveness OP

Priority	Type	Indicator	Unity	Target	Reported Achievements
1	Impact	Analysts PIPE 2000 (men)	No.	-	7
		Analysts PIPE 2000 (women)	No.	-	22
		Jobs created	No.	-	13,932
		Jobs retained	No.	-	47,530
	Execution	Attendance at fairs	No.	-	1,735
		Aid granted (Total)	No.	-	1,790
		companies that benefited	No.	-	11,727
		Beneficiary enterprises (SMEs)	No.	-	13,629
		advertising inserts	No.	-	2,113
		Organisations helped support SMEs	No.	-	476
		Plans to start overseas promotion	No.	-	387
	Result	Business start (or consolidated)	No.	-	414
		Private investment encouraged	m€	-	3,235
		Induced private investment in SMEs	m€	-	1,453
		Strengthen SMEs export,	No.	-	2,658
SMEs that export for the 1st time		No.	-	888	

## 10.6 (2000-2006) Information Society OP

Priority	Type	Indicator	Unity	Target	Reported Achievements
2	Impact	Penetration access with broadband capacity	%	-	22
		Population served	No. of people	-	81,885
		Population benefiting from the program PEBA	No.	-	7,048,882
	Execution	Applications developed and installed	No.	-	58
		TRAC lines activated	No.	-	27,295
		Projects of information technology systems and intelligent transportation services	No.	-	190
		Projects in areas of citizen services and public administration, telecommuting and special actions	No.	-	59
	Result	Actions taken	No.	-	24
		Students tested with virtual suitcase	No.	-	11,491
		Induced investment	million €	-	100
		No cities in which to implant	No.	-	40
		Number of municipalities with rural broadband service funded by the program	No.	-	3,835
		Number of new access to broadband capacity financed by the program	No.	-	720,080
		Agencies involved	No.	-	45
		SME's technological loan beneficiaries	No.	-	4,086
		Directly affected SMEs	No.	-	3,646
Online Utilities Administration		No.	-	14	
Users benefit	No.	-	27,295		

## 10.7 (2007-2013) Andalucía Regional OP

Priority	Indicator	Unity	Target	Reported Achievements
1	(10) Private investment encouraged	million €	171.9	100
	(11) Number of projects in ICTs	No.	1,703	501
	(4) Number of RTDI projects	No.	695	122
	(5) Number of cooperation projects between companies and research centres	No.	272	108
	(9) Jobs gross created	No.	3,431	3,124
	Job gross created (women)	No.	1,485	850
	Companies that have benefited Environmental Management Systems	No.	247	26
	Centres of R&D benefit	No.	165	70
	Applications developed	No.	138	35
	Autonomous benefited	No.	117	62
	Schools connected to broadband	No.	3,965	732
	Portals and government services created or adapted	No.	187	18
	Companies benefit	No.	2,095	624
	Autonomous women benefited	No.	30	24
	Environmental projects	No.	205	22



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Priority		Indicator	Unity	Target	Reported Achievements
2	Development and Innovation	(10) Private investment encouraged	million €	10,935	927
		(7) Number of projects in other investment in firms	No.	26,147	4,450
		(8) Number of start-ups supported in other investment in firms	No.	5,539	453
		(9) Jobs created gross	No.	64,876	8,841
		Jobs associated, Number of women participating in the projects	No.	41,289	2
		Jobs associated, Number of people participating in the projects	No.	83,292	11
		Job gross created (women)	No.	26,520	1,189
		Companies that have benefited Environmental Management Systems	No.	1,912	577
		Autonomous benefited	No.	14,275	1,013
		Projects in other measures to stimulated R&D in SMEs	No.	2,170	3,757
		Companies benefit	No.	90,214	10,989
		Autonomous women benefited	No.	7,328	343
		Environmental projects	No.	1,643	243
		3	Environment, Natural Environment, Water Resources and Risk Prevention	(25) Additional population served by water supply projects of risk prevention	No.
(26) Additional population served by water treatment projects of risk prevention	No.			1,204,794	45,595
(27) Number of waste projects of risk prevention	No.			126	15
(29) Restored Area of risk prevention	Has			234	57
(31) Number of projects [Priority 53]	No.			147	5
Actions in favour of reducing pollutant emissions	No.			151	1
Actions developed in Natura 2000 areas	No.			32	12
Actions developed outside Natura 2000 areas	No.			23	9
Rafts	No.			10	2
Channelling	km			93	9
Length of coastline affected	km			110	116
Projects of promotion of biodiversity	No.			47	6
Projects of other measures to prevent risks	No.			30	5
Dams	No.			2	1
Supply networks created	km			679	158
Improved supply networks	km			146	43
Wastewater created	km			228	38
Area affected areas NATURA 2000	Ha			20,352	1,652
Surface areas affected outside NATURA 2000	Ha			878	135
Surface Enhanced	Ha			78,198	953
Surface recovered and / or defended	Ha			6	6
Reforested area or affected by actions of prevention, protection and regeneration	Ha			47,991	8
Volume of wastewater treated and purified	m <sup>3</sup> /day			381,105	7,459
Volume of waste managed	Tm/ year	1,016,000	5,494		

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Priority		Indicator	Unity	Target	Reported Achievements
4	Transport and Energy	(13) Number of projects of transport	No.	214	28
		(14) New roads	km	680	120
		(15) New roads (Network TEN)	km	44	44
		(16) Roads rebuilt or refurbished	km	1,760	5,970
		(17) New railroad	km	242	3
		(23) Number of projects of renewable energy	No.	33,501	4,920
		Actions developed in airports	No.	25	22
		Actions developed in ports	No.	85	15
		Length of dikes	m	12,609	2,440
		Projects including environmental measures	No.	211	25
		Installed power	kW	251,381	46,349
		Construction and design of port area	m <sup>2</sup>	1,395,700	552,544
5	Regional and Urban Sustainable Development	(34) Number of projects of tourism and culture	No.	3,053	413
		New or improved cultural facilities	No.	50	14
		Property on which there have been efforts to conserve and restore	No.	108	176
		Projects of protection and preservation of the cultural heritage	No.	220	13
		Projects of development of cultural infrastructure	No.	51	7
		Environmental projects	No.	208	10
6	Investment in social infrastructure	(36) Projects in education infrastructure	No.	283	96
		(37) Students benefited	No.	89,484	18,605
		(38) Projects in health infrastructure	No.	106	50
		Centres built or renovated	No.	283	96
		Centres established or with large enlargements	No.	148	71
		Schools with accessibility actions	No.	210	45
		Equipped schools	No.	255	45
		Health centres with accessibility actions	No.	97	6
		Provision of health facilities	No.	9	44
		Women using social infrastructure	No.	30,116,637	871
		Jobs created in the dependent population care	No.	1,460	1,524
		New places in schools	No.	10,813	7,185
		Other community centres built or renovated	No.	39	48

## 11. ANNEX IV: LIST OF INTERVIEWEES

Name	Position (current and former roles where relevant)	Place	Date	Face to face / Telephone
Patricia Eguilior	Head of DG Economic Planning and EU Funds, Junta de Andalucía	Seville	16/03/2012	Face-to-face
Ricardo Enrique Piña Martínez	ERDF service, DG Economic Planning and EU Funds, Junta de Andalucía	Seville	16/03/2012	Face-to-face
José Salgueiro Carmona	Retired, former DG for Roads, Vice-Ministry for Transport and Public Works and Ministry of Economics, regional government of Andalucía	Seville	11/05/2012	Face-to-face
Manuel García Guirado	Expert and responsible person for ERDF in 1989-93 and other periods. Current position, planning manager, Andalucía port agency	Seville	11/05/2012	Face-to-face
Carlos Fernández Palacios	Member of the planning and marketing staff, former Andalucía Institute of Promotion, current position Andalucía Development Agency (IDEA)	Seville	14/05/2012	Face-to-face
Pablo Torres	Aid and Infrastructure Services, S.G. for Sports, regional government of Andalucía	Seville	15/05/2012	Face-to-face
Pablo Cañas Moreno	Director for General Affairs, Public Works Agency, Ministry for Transport and Public Works, regional government of Andalucía	Seville	16/05/2012	Face-to-face
Adolfina Martínez Guirado	Head of Planning Unit, DG Economic Planning and EU Funds, Junta de Andalucía	Seville	10/07/2012	Face-to-face
José Manuel Medina Picazo	Budgetary office, regional ministry for agriculture, fisheries and environment	Seville	11/07/2012	Face-to-face
Antonio Martín Machuca	Chief of Marketing, Turismo Andaluz, S.A.	Málaga	11/05/2012	Face-to-face
Joaquín Rodríguez Grau	CEO of Aerópolis, Aerospace Technology Park	Seville	11/05/2012	Face-to-face
Felipe Romera	CEO Andalucía Technology Park (PTA)	Málaga	12/07/2012	Face-to-face
Jordi Torredadella	Geographical Unit Spain, DG Region, European Commission	Brussels	06/06/2012	Face-to-face
Jose Luis González Valvé	Former officer at DG Regio, European Commission, current position Adviser at Sociedad Técnica de Aguas	Madrid	12/07/2012	Face-to-face
Laureano Lázaro Araujo	Retired, expert in Regional Development, former responsible person for EU Funds, 1989-93, Ministry of Finance, Spanish government	Madrid	11/05/2012	Face-to-face
Bienvenido Ortega	Expert in regional policy, evaluation team of the Andalucía ROP (2000-2006)	Seville	12/07/2012	Face-to-face
Joaquín Aurióles	Associate Professor University of Málaga. Spanish Regional Science Association	Málaga	12/11/2012	Email and phone
Juan R. Cuadrado Roura	Professor of Applied Economics in University of Alcalá. Expert in ERDF Evaluation (QUASAR), Spanish Association of Regional Studies	Madrid	20/11/2012	Email and Skype
Rosa Cobo Mayoral	Expert in regional policy. Former Deputy DG for EU Funds (95-2006), Spanish government. Current position, adviser at Ministry for Agriculture and Environment	Seville	19/07/2012	Face-to-face
Alejandro Arranz	Expert in regional policy, vast experience in Structural Funds Evaluation as member of the QUASAR team. Current position, Innovation adviser at Ayuntamiento de Madrid	Madrid	11/07/2012	Face-to-face
Alejandro Talavera	Institutional Relations, UGT Trade Union.	Seville	11/05/2012	Face-to-face
Francisco Alfonsín	Member of Andalucía ERDF Monitoring Committee, CC.OO. Trade Union	Seville	11/05/2012	Face-to-face
Antonio Moya	Andalucía Entrepreneurs Association (CEA)	Seville	10/07/2012	Face-to-face
Luis M. Cordero Palomo	Director for entrepreneurship, Chamber of Commerce of Seville	Seville	19/11/2012	Face-to-face

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Name	Position (current and former roles where relevant)	Place	Date	Face to face / Telephone
Ignacio Castelao	Civil Engineer, ACUAMED (Mediterranean Water Society)	Madrid	04/12/2012	Skype
David Borrallo Rodríguez	Director for strategy, Dborrallo Comunicación	Seville	19/11/2012	Face-to-Face
Fernando Reyero	President of Itsmo 94 (hydraulic and environmental consulting company)	Seville	17/12/2012	Face-t-Face
Pedro Parias	Irrigation Communities Association of Andalucía (FERAGUA)	Seville	10/07/2012	Face-to-face
Carlos Ruiz Beneyto	Responsible person for Investment Funds and JESSICA in Andalucía. European Investment Bank (EIB)	Seville	10/07/2012	Face-to-face
María Gorriti Gutiérrez-Cortines	Deputy DG for Evaluation, DG for EU Funds, Ministry of Finance, Spanish government	Madrid	26/03/2012	Face-to-face
Ignacio Martínez Huertas	Former Deputy DG for Evaluation, DG for EU Funds, Ministry of Finance, Spanish government	Madrid	28/03/2012	Face-to-face
María Muñoz	Evaluation Service, DG for EU Funds, Ministry of Finance, Spanish government	Madrid	28/03/2012	Face-to-face
Anatolio Alonso	Deputy DG for ERDF, DG for EU Funds, Ministry of Finance, Spanish government	Madrid	11/05/2012	Face-to-face
Ignacio Fernández-Huertas Moraga	Responsible person for INTERREG and Territorial Cooperation Programmes, DG for Evaluation, DG for EU Funds, Ministry of Finance, Spanish government	Madrid	11/05/2012	Face-to-face
Jorge García Reig	Deputy DG for Evaluation, DG for EU Funds, Ministry of Finance, Spanish government	Madrid	11/05/2012	Face-to-face
José María Pinero	Director General, DG for EU Funds, Ministry of Finance, Spanish government	Madrid	11/05/2012	Face-to-face

## 12. ANNEX V: OVERVIEW OF SOURCES USED FOR THE CASE STUDY

Programme name	OP	AIR	FIR	Spend (by measure)	Evaluation reports	Strategic interviews	Operational interviews	External interviews	Stakeholder/ Beneficiary interviews	Workshop
Andalucía ERDF OP 1989-1993	NO	NO	YES	YES	PART	YES	YES	YES	YES	YES
Regional Development Plan of Spain (PDR) 89-93	YES	NO	NO	NO	PART	YES	YES	YES	YES	YES
Cohesion Fund managed by the Junta de Andalucía (complementarity with Community Support Framework)1989-1993	NO	NO	YES	YES	PART	YES	YES	YES	YES	YES
Community Support Framework (Andalucía) 1989-1993	YES			YES	YES	YES	YES	YES	YES	YES
Andalucía ERDF OP 1994-1999	YES	NO	YES	YES	PART	YES	YES	YES	YES	YES
Andalucía Global Grant 1994-1999	NO	NO	YES	YES	PART	YES	YES	YES	YES	YES
Doñana II Phase OP 1994-1999	NO	NO	YES	YES	PART	YES	YES	YES	YES	YES
Andalucía Monitoring Committee, June 1999	NO	YES	NO	YES	PART	YES	YES	YES	YES	YES
PO Interreg II España-Portugal, Cooperación Transfronteriza, 1994-1999	YES		YES	YES	PART	YES		YES	YES	YES
“Fondo de Cohesión Gestionado por la Junta de Andalucía, 95-99”	YES			YES		YES	YES	YES		
Community Support Framework (Andalucía) 1994-1999	YES			YES	YES	YES	YES	YES	YES	YES
Andalucía ERDF OP 2000-2006	YES	NO	NO	YES	PART	YES	YES	YES	YES	YES
Andalucía Integrated Operational Programme 2000-2006	YES	YES	NO	YES	PART	YES	YES	YES	YES	YES
Andalucía Integrated Operational Programme 2000-2006, Anualidad 2005		YES	NO							
Andalucía Integrated Operational Programme 2000-2006, Anualidad 2007		YES	NO							
Andalucía Integrated Operational Programme 2000-2006, Final Report		NO	YES							
“Programa Operativo Integrado FEDER-FSE de Investigación, Desarrollo e Innovación, Objetivo 1, 2000-2006”	YES	NO	YES	YES		YES	YES	YES	YES	
Local OP 2000-2006, Final Report	YES	NO	YES	YES						
Final Report of the NOP “Mejora de la Competitividad y Desarrollo del Tejido Productivo 2000-2006”	YES	NO	YES	YES						
Interreg III A ‘España-Portugal’, Informe final, Agosto 2010	YES	NO	YES	YES						

Programme name (continuation)	OP	AIR	FIR	Spend (by measure)	Evaluation reports	Strategic interviews	Operational interviews	External interviews	Stakeholder/ Beneficiary interviews	Workshop
Complemento de Programa, Documento único de programación Interreg III a 'España-Portugal' 2000-2006	YES									
Fondo de Cohesión 2000-2006				YES		YES	YES			
Community Support Framework (Andalucía) 2000-2006	YES			YES	YES	YES	YES	YES	YES	YES
Andalucía ERDF OP 2007-2013	YES	YES	NO	YES	NO	YES	YES	YES	YES	YES
Evaluación Ex-Ante del PO FEDER de Andalucía 2007-2013										
Programa Operativo de Andalucía FEDER 2007-2013, Anualidad 2010		YES	NO	YES	YES	YES	YES	YES	YES	YES
Programa Operativo de Andalucía FEDER 2007-2013, Anualidad 2011		YES	NO							
2007-2013 Cohesion Fund NOP	YES	YES		YES		YES				
Community Support Framework (Andalucía) 2007-2013	YES			YES	YES	YES	YES	YES	YES	YES

## 13. ANNEX VI: REFERENCES

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## 14. ANNEX VII: ONLINE SURVEY

A total of 499 contacts were invited to take part in the online survey for Andalucía. This number includes 18 who were interviewed by the case study team, plus 481 additional invitees. The 481 additional invitees were broken down as follows: 11 percent were local authority contacts (selected senior administrators and political leaders in local authorities and bodies representing them); 65 percent were firms (whether beneficiaries or unsuccessful applicants); 6 percent were regional/local level political party representatives; 3 percent were regional/local social partners, third-sector organisations and trade unions; 5 percent were from other local interest groups; and the remaining 10 percent were from other organisations not classified within these categories (or which were unspecified). Such organisations included, for example, Spanish Government representatives above regional/local level and independent experts from various fields.

The overall response rate (i.e. those who started the survey and answered at least one question) was 19.8 percent, though the percentage of invitees who completed the entire survey (i.e. up to and including the final question) was expectedly lower at 8.0 percent. For the questions applicable to all, the response rates varied between 7.0 percent and 19.8 percent (there were also questions which related to each specific programme period only and these were filtered accordingly).

Within the above-mentioned categories, the breakdown of non-interviewee respondents was as follows (fully completed responses): 9 percent were local authority contacts; 48 percent were from the sample of firms; 7 percent were regional/local level political party representatives; 4 percent were from the category regional/local social partners, third-sector organisations and trade unions; 4 percent were from other local interest groups; and the remaining 28 percent were other/unspecified.

Proportionally speaking, regional/local level political party representatives were the least responsive group (of non-interviewees) in terms of responding to survey invitations. However, this group also had the highest completion rate, of 100 percent (i.e. the proportion of those starting who then progressed up to and including the final question).<sup>37</sup> Individuals representing firms had the lowest completion rate, of 48 percent.

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<sup>37</sup> Although 27 contacts in this group were invited, only a small number (three) responded. All three completed the survey in its entirety.

**1. What type of organisation do you represent? Please tick all that apply, e.g. if you have changed status throughout the period or if more than one condition applies (e.g. beneficiary and unsuccessful applicant, beneficiary and representative of local interest group).**

#	Answer	Response	%
1	Central Government Department/Agency	3	3%
2	Regional Government Department/Agency	27	27%
3	Local authority	10	10%
4	Political party or political constituency	0	0%
5	Firm	42	42%
6	Socio-economic organisation	10	10%
7	Interest group (e.g. environmental or social association/citizens' movement)	3	3%
8	None of the above (please describe)	11	11%

None of the above (please describe)

Universidad

Comisión Europea IPTS Científico Temporal

Profesor universitario

Universidad

UNIVERSIDAD DE SEVILLA

Universidad

Gestora de un Parque Científico y Tecnológico

Comisión Europea IPTS





Centro Tecnológico

Universidad





**2. Please specify which type of political party or political constituency you represent:**

#	Answer	Response	%
1	National	0	0%
2	Regional	0	0%
3	Local	0	0%
	Total	0	0%

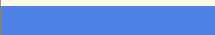

**3. Please specify which firm type you represent:**

#	Answer		Response	%
1	Micro (		11	28%
2	Small (		15	38%
3	Medium (		6	15%
4	Large		8	20%
	Total		40	100%

**4. Please specify which type of socio-economic organisation you represent:**




#	Answer		Response	%
1	Trade Union		2	22%
2	Entrepreneurial association		2	22%
3	Third sector organisation		1	11%
4	Other (please specify)		4	44%
	Total		9	100%

**5. What type of interest group do you represent?**





#	Answer		Response	%
1	National		1	50%
2	Regional		1	50%
3	Local		0	0%
4	Other (please specify)		0	0%
	Total		2	100%

Other (please specify)

**6. Was your involvement in the ERDF programmes direct or indirect?**

#	Answer		Response	%
1	Direct		37	39%
2	Indirect		43	45%
3	Both direct and indirect		15	16%
	Total		95	100%

**7. Please indicate how you were directly involved:**

#	Answer		Response	%
1	As a political decision maker		9	18%
2	As an administrator		11	22%
3	As a beneficiary		26	52%
4	Other (please specify)		4	8%
	Total		50	100%

Other (please specify)

Hasta 1995 como administrador y a partir de ese año como beneficiario

GESTOR-ASESOR

Investigación y docencia

Agente para implementación de programas

**8. Please indicate how you were indirectly involved:**

#	Answer	Response	%
1	As a politician (not directly involved in the programmes)	5	10%
2	As an indirect recipient of support (not receiving directly resources from the programme)	15	31%
3	As a stakeholder (e.g. member of an organisation representing specific interests)	6	13%
4	As a member of the public	14	29%
5	Other (please specify)	8	17%
	Total	48	100%

**9. Please indicate in which of the following period/s your involvement in ERDF programmes took place (please tick all that apply):**

#	Answer	Response	%
1	1989-93	16	19%
2	1994-99	36	43%
3	2000-06	55	65%
4	2007-13	70	83%

**10. Could you please assess the extent to which the ERDF programmes delivered achievements in the fields outlined below (across the entire period, i.e. 1989 to date)?**

#	Question	Very significant	Significant	Quite significant	Modest	None	Don't know	Responses
1	Increase in numbers of new firms	9	14	18	14	3	12	70
2	Increased growth of existing firms	9	17	24	10	4	7	71
3	Enhanced competitiveness such as increased exports	8	14	18	18	5	8	71
4	Enhanced internationalisation, better marketing	7	13	15	21	5	9	70
5	Attraction of foreign investment	6	7	22	14	9	11	69
6	Site reclamation and premises for industry	10	23	14	11	2	10	70
7	Job creation	10	22	19	13	4	3	71
8	Shift to growth clusters	6	9	18	16	5	14	68
9	Growth in manufacturing	3	12	20	21	3	11	70
10	Growth in professional services	4	18	25	10	4	8	69
11	Growth in tourism and creative industries	10	16	15	12	5	12	70
12	Increased R&D and provision of technical support from public and non-profit sector	19	14	21	9	4	3	70
13	Increased R&D and innovation in business	18	9	21	16	4	3	71
14	Enhanced adoption of process technologies	9	16	20	14	4	6	69
15	Adoption of good practices in managerial processes	7	12	28	13	4	6	70
16	Improvement of environmental quality (e.g. waste and water treatment, decontamination of land, enhanced biodiversity.)	12	23	10	11	4	10	70
17	Reduction of energy consumption and Co2 emission in productive processes	5	11	22	15	4	12	69
18	Development of environmental friendly transport systems, sustainable lighting/heating etc.	5	15	16	15	5	11	67
19	Labour market inclusion (e.g. re-integration of long-term unemployed and marginalised groups etc.)	6	11	14	19	9	9	68
20	Provision of community services for disadvantaged areas	10	14	19	11	4	9	67
21	Community development/social enterprise	7	11	21	14	5	10	68
22	Communications and infrastructure to improve accessibility to wider markets (e.g. ports, airports etc.)	31	15	14	3	3	3	69
23	Regional communications infrastructure for improved accessibility within the region	32	11	17	1	4	3	68
24	Overall improvement in image for the region	20	22	14	6	5	2	69
25	Other (please specify)	1	1	1	0	0	4	7



**12. In your view, did the objectives of the ERDF programmes address regional needs?**

#	Question	Yes, very significantly	Yes, significantly	Yes, quite significantly	Yes, but to a limited degree	No, not at all	Don't know	Responses
1	1989-93	10	10	14	6	1	30	71
2	1994-99	12	17	14	4	1	23	71
3	2000-06	10	27	13	9	1	11	71
4	2007-13	11	25	13	12	3	7	71
5	Across the entire period	8	21	20	6	1	15	71

**13. In your view, was there ever a mismatch between regional needs and the ERDF support provided?**

#	Question	Yes, a considerable mismatch	Yes, but not too considerable	No, ERDF programmes met the needs	Don't know	Responses
1	1989-93	5	13	20	33	71
2	1994-99	3	16	26	26	71
3	2000-06	3	30	24	14	71
4	2007-13	8	29	21	13	71
5	Across the entire period	3	27	22	19	71

**15. For the period 1989-93, please rate the following statements. When a statement does not apply, please choose 'N/A' (not applicable)**

#	Question	Strongly agree	Agree	Somewh at agree	Neither agree nor disagree	Somewh at disagree	Disagree	Strongly disagree	N/A	Responses
1	The programme entailed an appropriate strategy/ies	3	5	2	1	0	0	1	0	12
2	The programme targeted support appropriately (via the selection criteria adopted)	2	5	3	0	1	1	0	0	12
3	The allocation of funding was in line with needs	2	2	6	1	1	0	0	0	12
4	The concentration of funding on selected fields enhanced the programme's effectiveness	2	3	2	3	2	0	0	0	12
5	The concentration of funding on few, large projects enhanced the programme's effectiveness	0	1	2	4	2	1	1	1	12
6	The design of the programme was improved by the involvement of stakeholders	1	2	4	3	0	0	1	1	12
7	The programme's strategy was enhanced by the use of evaluation evidence	1	2	5	1	2	0	1	0	12
8	Implementation was effective	1	7	2	1	0	0	1	0	12
9	The performance of the programme was enhanced by ongoing monitoring of its implementation	1	2	5	1	1	0	1	1	12
10	The implementation of the programme was enhanced by the involvement of partners/stakeholders	0	2	2	2	1	4	1	0	12
17	The programme achieved a fruitful integration with other EU policies	0	5	3	2	2	0	0	0	12
18	The programme achieved a fruitful integration with domestic policies	0	5	4	2	1	0	0	0	12
19	The programme was flexible enough to accommodate changing socio-economic needs	0	3	3	3	3	0	0	0	12
14	The programme was flexible enough to accommodate changing recipients' needs	1	3	3	2	3	0	0	0	12
15	Other (please specify)	0	0	0	0	0	0	0	0	0
16	Other (please specify)	0	0	0	0	0	0	0	0	0

**16. For the period 1994-99, please rate the following statements. When a statement does not apply, please choose 'N/A' (not applicable)**

#	Question	Strongly agree	Agree	Somewh at agree	Neither agree nor disagree	Somewh at disagree	Disagree	Strongly disagree	N/A	Responses
1	The programme entailed an appropriate strategy/ies	4	13	4	1	0	0	1	3	26
2	The programme targeted support appropriately (via the selection criteria adopted)	2	13	4	1	2	2	0	2	26
3	The allocation of funding was in line with needs	1	15	4	2	1	1	0	2	26
4	The concentration of funding on selected fields enhanced the programme's effectiveness	0	12	3	6	2	0	0	3	26
5	The concentration of funding on few, large projects enhanced the programme's effectiveness	1	3	7	6	2	2	1	4	26
6	The design of the programme was improved by the involvement of stakeholders	1	6	9	5	1	0	2	2	26
7	The programme's strategy was enhanced by the use of evaluation evidence	1	4	10	1	3	3	1	3	26
8	Implementation was effective	3	11	3	4	0	1	2	2	26
9	The performance of the programme was enhanced by ongoing monitoring of its implementation	1	7	9	3	3	0	1	2	26
10	The implementation of the programme was enhanced by the involvement of partners/stakeholders	1	6	9	2	2	3	1	2	26
11	The programme achieved a fruitful integration with other EU policies	1	11	6	4	1	1	0	2	26
12	The programme achieved a fruitful integration with domestic policies	2	10	6	5	0	1	0	2	26
13	The programme was flexible enough to accommodate changing socio-economic needs	0	6	6	7	4	1	0	2	26
14	The programme was flexible enough to accommodate changing recipients' needs	1	6	5	3	7	2	0	2	26
15	Other (please specify)	0	0	0	0	0	0	1	6	7
16	Other (please specify)	0	0	0	0	0	0	0	6	6

**17. For the period 2000-06, please rate the following statements. When a statement does not apply, please choose 'N/A' (not applicable)**

#	Question	Strongly agree	Agree	Somewh at agree	Neither agree nor disagree	Somewh at disagree	Disagre e	Strongly disagree	N/A	Responses
1	The programme entailed an appropriate strategy/ies	5	27	10	1	1	0	1	0	45
2	The programme targeted support appropriately (via the selection criteria adopted)	1	24	10	3	2	3	0	2	45
3	The allocation of funding was in line with needs	3	18	11	6	5	1	0	1	45
4	The concentration of funding on selected fields enhanced the programme's effectiveness	1	20	9	9	3	0	0	2	44
5	The concentration of funding on few, large projects enhanced the programme's effectiveness	1	11	12	8	6	3	1	3	45
6	The design of the programme was improved by the involvement of stakeholders	4	16	11	8	1	1	2	2	45
7	The programme's strategy was enhanced by the use of evaluation evidence	2	16	8	9	2	3	2	3	45
8	Implementation was effective	4	15	10	6	5	2	2	1	45
9	The performance of the programme was enhanced by ongoing monitoring of its implementation	5	13	12	6	6	1	1	1	45
10	The implementation of the programme was enhanced by the involvement of partners/stakeholders	3	12	11	12	1	5	1	0	45
11	The programme achieved a fruitful integration with other EU policies	2	16	11	8	2	2	0	3	44
12	The programme achieved a fruitful integration with domestic policies	3	20	8	8	1	2	0	3	45
13	The programme was flexible enough to accommodate changing socio-economic needs	1	12	9	7	8	5	0	3	45
14	The programme was flexible enough to accommodate changing recipients' needs	2	13	7	7	9	5	0	2	45
15	Other (please specify)	0	0	0	0	0	0	1	6	7
16	Other (please specify)	0	0	0	0	0	0	0	6	6

**18. For the period 2007-13, please rate the following statements. When a statement does not apply, please choose 'N/A' (not applicable)**

#	Question	Strongly agree	Agree	Somewh at agree	Neither agree nor disagree	Somewh at disagree	Disagree	Strongly disagree	N/A	Responses
1	The programme entailed an appropriate strategy/ies	7	26	9	4	2	0	2	1	51
2	The programme targeted support appropriately (via the selection criteria adopted)	5	18	11	8	2	3	1	3	51
3	The allocation of funding was in line with needs	4	18	9	8	6	3	1	2	51
4	The concentration of funding on selected fields enhanced the programme's effectiveness	6	16	7	12	5	4	0	1	51
5	The concentration of funding on few, large projects enhanced the programme's effectiveness	2	10	11	7	11	8	0	2	51
6	The design of the programme was improved by the involvement of stakeholders	7	10	9	12	4	3	2	4	51
7	The programme's strategy was enhanced by the use of evaluation evidence	4	12	10	10	3	6	2	4	51
8	Implementation was effective	4	12	11	8	6	3	3	3	50
9	The performance of the programme was enhanced by ongoing monitoring of its implementation	4	13	9	7	6	5	3	4	51
10	The implementation of the programme was enhanced by the involvement of partners/stakeholders	6	10	9	12	4	5	2	3	51
11	The programme achieved a fruitful integration with other EU policies	4	14	10	11	4	4	0	4	51
12	The programme achieved a fruitful integration with domestic policies	4	16	7	11	4	4	2	3	51
13	The programme was flexible enough to accommodate changing socio-economic needs	2	7	8	12	11	7	2	2	51
14	The programme was flexible enough to accommodate changing recipients' needs	2	8	10	9	10	5	4	3	51
15	Other (please specify)	1	0	0	0	1	0	1	8	11
16	Other (please specify)	1	0	0	0	1	0	0	8	10

**19. For the entire period (i.e. 1989 to date), please rate the following statements. When a statement does not apply, please choose 'N/A' (not applicable)**

#	Question	Strongly agree	Agree	Somewh at agree	Neither agree nor disagree	Somewh at disagree	Disagree	Strongly disagree	N/A	Responses
1	The programmes entailed appropriate strategies	4	26	10	4	2	1	2	6	55
2	The programmes targeted support appropriately (via the selection criteria adopted)	1	27	8	5	3	3	1	6	54
3	The allocation of funding was in line with needs	2	22	12	5	4	3	1	5	54
4	The concentration of funding on selected fields enhanced the programmes' effectiveness	2	20	8	9	8	2	0	6	55
5	The concentration of funding on few, large projects enhanced the programmes' effectiveness	2	9	10	12	7	7	0	8	55
6	The design of the programmes was improved by the involvement of stakeholders	5	14	13	11	0	3	2	7	55
7	The programmes' strategy was enhanced by the use of evaluation evidence	3	13	14	9	4	4	1	6	54
8	Implementation was effective	5	15	15	6	4	1	3	6	55
9	The performance of the programmes was enhanced by ongoing monitoring of its implementation	4	15	15	7	2	4	2	6	55
10	The implementation of the programmes was enhanced by the involvement of partners/stakeholders	7	13	10	7	3	7	2	6	55
11	The programmes achieved a fruitful integration with other EU policies	3	17	13	9	3	3	0	7	55
12	The programmes achieved a fruitful integration with domestic policies	4	19	12	8	2	3	1	6	55
13	The programmes were flexible enough to accommodate changing socio-economic needs	2	10	14	10	8	3	1	6	54
14	The programmes were flexible enough to accommodate changing recipients' needs	2	11	16	8	6	3	2	6	54
15	Other (please specify)	0	0	0	1	0	0	1	11	13
16	Other (please specify)	0	0	0	1	0	0	0	10	11

**20. On the whole, could you assess the impact of ERDF programmes? For current programmes, please assess the level of impact which you anticipate they will have.**

#	Question	Very positive	Positive	Quite positive	None /negligible	Quite negative	Negative	Very negative	Don't know	Responses
1	1989-93	10	18	7	1	0	0	0	24	60
2	1994-99	15	17	6	2	0	0	0	20	60
3	2000-06	11	29	11	0	1	0	0	8	60
4	2007-13	10	23	16	5	1	0	0	5	60
5	Across the entire period	11	27	12	2	0	0	0	8	60

**22. Looking to the future, are there any aspects of ERDF design and implementation that would need to be improved to increase the extent to which support meets regional needs and enhance achievements?**

#	Answer	Response	%
1	Programme design more responsive to regional needs via more use of evaluation evidence	47	78%
2	Programme design more respondent to regional needs via improved involvement of local authorities	24	40%
3	Programme design more respondent to regional needs via improved involvement of socio-economic partners and stakeholders	27	45%
4	Better targeting of interventions	34	57%
5	Increased funding concentration on key priorities	26	43%
6	Increased funding concentration on key target groups	15	25%
7	Increased funding concentration on fewer, bigger projects	11	18%
8	Increased funding of smaller projects	24	40%
9	Increased packaging of smaller projects	19	32%
10	Increased flexibility during the programme period to adapt programmes to changing needs	42	70%
11	Increased flexibility during the programme period to accommodate changing beneficiary needs	36	60%
12	Widening of eligible expenditure categories	30	50%
13	Better integration with other EU funding sources	27	45%
14	Better integration with domestic funding sources	29	48%
15	Simpler administration of the funds for programme authorities	35	58%
16	Simpler administration of the funds for programme beneficiaries	41	68%
17	Increased transparency in project selection	35	58%
18	Increased competitiveness in project selection	28	47%
19	Increased results-orientation in project selection	34	57%
20	Increased upfront funding for project beneficiaries (advances)	33	55%
21	Increased clarity on administrative requirements for project holders	31	52%
22	Other (please specify) ....	5	8%
23	Don't know	2	3%