EEA Report | No 8/2016

The direct and indirect impacts of EU policies on land

A full description of two case studies

European Environment Agency

EEA Report | No 8/2016

The direct and indirect impacts of EU policies on land

A full description of two case studies

European Environment Agency

TABLE OF CONTENTS

ABBREVIATIONS **3**

1. CASE STUDY: ANDALUSIA, SPAIN **6**

1.1 Introduction 6

1.2 Context 7

1.3 Policy objectives and coherence 16

1.4 The policy implementation process 22

1.5 Evidence of impacts on land 28

1.6 Conclusions 30

2. CASE STUDY: POLAND **32**

2.1 Introduction 32

2.2 Context 33

2.3 Policy objectives and instruments 39

2.4 Policy implementation process 48

2.5 Evidence of impacts on land 50

2.6 Conclusions 55

REFERENCES **58**

Abbreviations

AA	Appropriate Assessment
BPS	Basic Payment Scheme
CAP	Common Agricultural Policy
CEF	Connecting Europe Facility
CF	Cohesion Fund
CLLD	Community Led Local Development
CSF	Common Strategic Framework
EAFRD	European Agricultural Fund for Rural Development
EAP	Environment Action Programme
EAFRD	European Agricultural Rural Development Fund
EAGF	European Agricultural Guarantee Fund
EAGGF	European Agricultural Guidance and Guarantee Fund
EASM	Executive Agency for Small and Medium-sized Enterprises
EC	European Commission
EEA	European Environment Agency
EMFF	European Maritime and Fisheries Fund
ERDF	European Regional Development Fund
EIA	Environmental Impact Assessment
EIB	European Investment Bank
ESF	European Social Fund
ESI	European Structural and Investment
ESPON	European Observation Network for Territorial Development and Cohesion.
EU	European Union
FAO	Food and Agricultural Organisation of the United Nations
FD	Floods Directive
FIFG	Financial Instrument for Fisheries Guidance

FRMP	Flood Risk Management Plan
GAEC	Good Agricultural and Environmental Condition
GDP	Green Direct Payment
GUS	Main Statistical Office of Poland
IA	Impact Assessment
ICT	Information and Communication Technologies
INEA	Innovation and Networks Executive Agency
ITI	Integrated Territorial Investment
ISOCARP	International Manual of Planning Practice
JASPERS	Joint Assistance to Support Projects in European Regions
JRC	Joint Research Centre
LUMP	Land Use Modelling Platform
ND	Nitrate Directive
NSRF	National Strategic Reference Frameworks
NVZ	Nitrates Vulnerable Zone
OP	Operational Programme
PA	Partnership Agreements
PCI	Projects of common interest
PLN	Polish złoty
POM	Programme of Measure
RBMP	River Basin Management Plan
RDP	Rural Development Programme
Recare	Preventing and Remediating degradation of soils in Europe through Land Care
SAC	Spatial Areas of Conservation
SAPS	Single Area Payment Scheme
SEA	Strategic Environmental Assessment
SF	Structural Funds

SPS	Single Payment Scheme
SOER	State of the Environment Report
TEN-E	Trans-European Energy Network
TEN-T	Trans-European Transport Network
WFD	Water Framework Directive

1 Case study: Andalusia, Spain

Photo: © Víctor Fernández Salinas

1.1 Introduction

This case study aims to provide a better understanding of the role of European Union (EU) policies in land take- and land degradation-related impacts in the region of Andalusia, Spain. Spain uses a decentralised system and the regions have a high level of autonomy; thus, the regional level is appropriate for a case study. The study applies the methodology presented in Chapter 2 of EEA Report No 8/2016 and focuses primarily on urban and territorial development as well as transport, as these are, by far, the main drivers of land-related impacts in the region. In the context of the present study, Andalusia is particularly relevant, as this region is both a large recipient of EU funds and a noteworthy example of rapid urban development (i.e. land take), particularly in coastal areas. This has been, to a great extent, the result of an economic growth model approach, based on land-intensive sectors (such as construction, transport and tourism).

The case study focuses on EU spending on transport, particularly roads, although it also notes the results of designating protected areas as part of the EU Natura 2000 network. As discussed below, EU policies have played a major role in fostering forward-looking strategic planning in Andalusia (and Spain as a whole), as well as the development of a range of sustainability and environmental assessments. However, these policies appear to have been unable to curb the expansion model, which has resulted in an excessive growth rate with regard to urban sprawl and in large-scale infrastructure development. The case study is structured as follows:

- Section 1.2 describes recent trends in land take and discusses the main drivers underlying those trends;
- Section 1.3 provides an assessment of the coherence of relevant policy documents with land-related objectives at EU level;
- Section 1.4 focuses on implementation-related aspects, including those related to the monitoring and reporting of land-related impacts;
- Section 1.5 outlines the information available on land-related impacts;
- the conclusions are presented in Section 1.6.

1.2 Context

This section presents the general land-take trends and drivers in Spain and Andalusia, based on data and information provided by Andalusia's regional administration officials, as well as by other experts. The analysis primarily focuses on the period after 2000, although data for previous years are also presented whenever available.

1.2.1 Land-take trends in Spain and Andalusia

The total area of Spain amounts to around 504 600 km^2. In 2006, 50 % of the Spanish territory was covered by agricultural areas, 47 % by forests and 2 % by artificial areas (Table 1.1).

Table 1.1 Land cover in Spain, 2006 (percentage of total land cover)

Type of land cover	2006
Artificial areas	2.0 %
Agricultural areas	50.1 %
Forested land and natural vegetation	47.1 %
Water bodies and wetlands	0.8 %

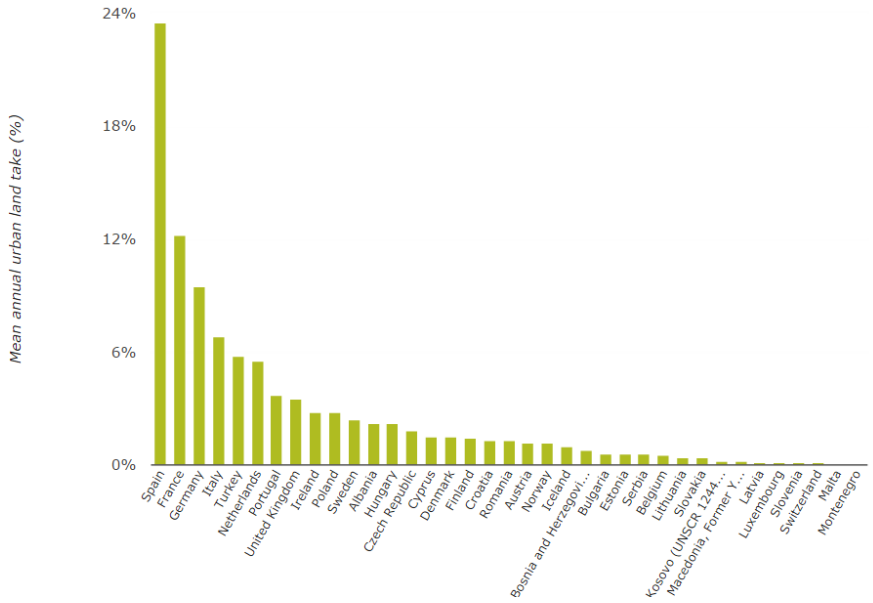
Source: OSE (2010).

An important fact that must be pointed out is that only a small percentage of the Spanish territory is covered by urban and other artificial areas (2 % of the total area in 2006), yet these are the areas that have expanded most dramatically in recent years, mainly as a result of urban sprawl and the construction of new infrastructures (OSE, 2010). According to Moreira (2011), the mean annual rate of urban expansion was around 1.9 % between 1987 and 2000, equivalent to 2 ha per hour. At that time, the rate of creation of artificial land in Spain was considerably higher than the EU average, which, according to data gathered through the Corine Land Cover project, occurred at a rate of 0.68 % per annum between 1987 and 2000 ([1]).

However, the most dramatic increase in urban and artificial surfaces took place after 2000: the growth rate of artificial surfaces was 3.37 ha per hour between 2000 and 2006, equivalent to 29 500 ha per year (OSE, 2010). As shown in Figure 1.1, during that period, Spain's average annual urban land take reached a rate of nearly 25 % of the total urban land take in Europe (EEA, 2013).

([1]) These data refer to 23 European countries for the period 1987–2000.

Figure 1.1 Mean annual urban land take as a percentage of total urban land take in Europe, 2000–2006



Source: EEA (2013).

Overall, the cumulative growth rate of artificial surfaces in Spain between 1987 and 2006 was 51.87 %. Around 62 % of the newly urbanised areas had previously been agricultural areas, and around 25 % had previously been covered by forests (OSE, 2010). Nevertheless, the process of artificialisation has not affected all of the Spanish territory in a uniform manner; coastal areas (the Mediterranean coastline in particular), as well as large and medium-sized cities, account for most of the increase in the area of artificial land (OSE, 2010).

Urban sprawl, which is generally associated with negative socio-economic and environmental impacts (see Box 1.1), has been particularly acute in Spain (and Andalusia). The first 10 km of coastline represent around 6.7 % of the total Spanish territory, and this area accounted for 30 % of the country's artificial areas in 2006 (Moreira, 2011). By 2006, an average of 9 % of the Spanish coastline (in its first 10 km) was covered by artificial surfaces, compared with an average of 2 % of the Spanish territory as a whole (Moreira, 2011). In the Mediterranean area, at least 34 % of the first 1 km of coastline was covered by artificial surfaces (OSE, 2006).

Box 1.1 Negative consequences of urban sprawl

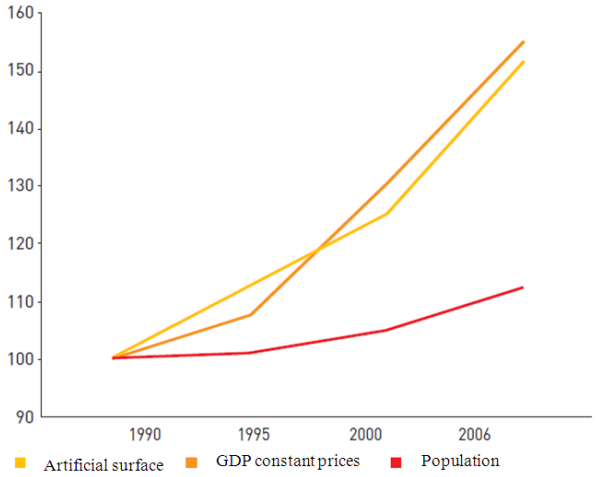
Urban sprawl may result in several negative impacts, namely the following:

- inflated infrastructure and public service costs;
- energy inefficiency;
- marked spatial disparity in wealth;
- negative impacts on wildlife and ecosystems;
- loss of farmland;
- poor air quality;
- negative impacts on water quality and quantity.

Source: Bhatta (2010).

The last period of economic growth in Spain placed strong pressures on the environment. As shown in Figure 1.2, there has been a strong correlation between output growth and soil sealing over the past years, particularly between 2000 and 2006 (OSE, 2006). Notably, this has had an impact on ecosystem degradation, habitat loss and landscape fragmentation; these factors can also harm the economy, by, for example, negatively affecting the tourism sector in some coastal areas (OSE, 2006).

Figure 1.2 Artificial surface growth, GDP growth and population growth in Spain between 1990 and 2006 (1990 = 100)



Note: Gross domestic product (GDP) at constant prices (1995 = 100).

Source: OSE (2010).

The trends in land-use change and land take in Andalusia have been in line with trends in Spain as a whole, although more exacerbated in some regions, particularly coastal areas. According to data provided by the Junta de Andalucía, urban and other artificial areas increased from 1.6 % in 1991 to 4.7 % of the total territory in 2011 ([2]), with most of this increase taking place after 2000 ([3]). Over the same period, another substantial change was the decrease in the area of land devoted to agricultural activities. Table 1.2 provides data on the evolution of land cover in Andalusia.

Table 1.2 Land cover in Andalusia, 1991–2011 (as a percentage of total land cover)

Land cover type	1991	1995	1999	2005	2009	2011
Artificial areas	1.6 %	1.8 %	1.9 %	4.2 %	4.5 %	4.7 %
Agricultural areas	46.8 %	47.0 %	47.2 %	40.4 %	40.2 %	40.0 %
Forested land and natural vegetation	50.2 %	50.0 %	49.4 %	51.9 %	51.8 %	51.7 %
Water bodies and wetlands	1.4 %	1.2 %	1.5 %	3.4 %	3.5 %	3.6 %

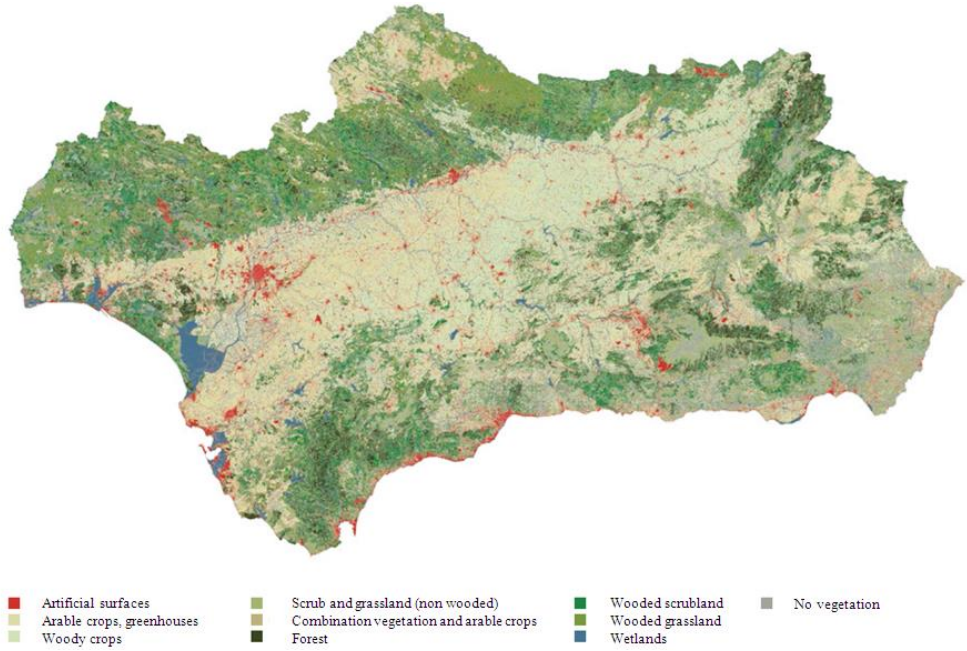
Note: There was a change in the methodology used to obtain these data between 1991 and 2011. From 1991 to 1999, the methodology used was that of the 'Mapa de Usos y Coberturas Vegetales del Suelo de Andalucía', used at regional level by the Junta de Andalucía. From 2005 to 2011, the methodology described in the 'SIOSE Andalucía', which is employed at national level, was used.
Source: Junta de Andalucía.

([2]) The total area of Andalusia amounts to 87 000 km^2.

([3]) It is not clear, however, the extent to which methodological changes may have distorted these figures.

As shown in Figure 1.3, artificial surfaces are concentrated in interior cities, such as Seville, Granada and Córdoba, as well as along the coastline, particularly in the western part of the province of Malaga, and the bays of Cadiz, Algeciras, Huelva and Almería.

Figure 1.3 Land cover in Andalusia, 2012

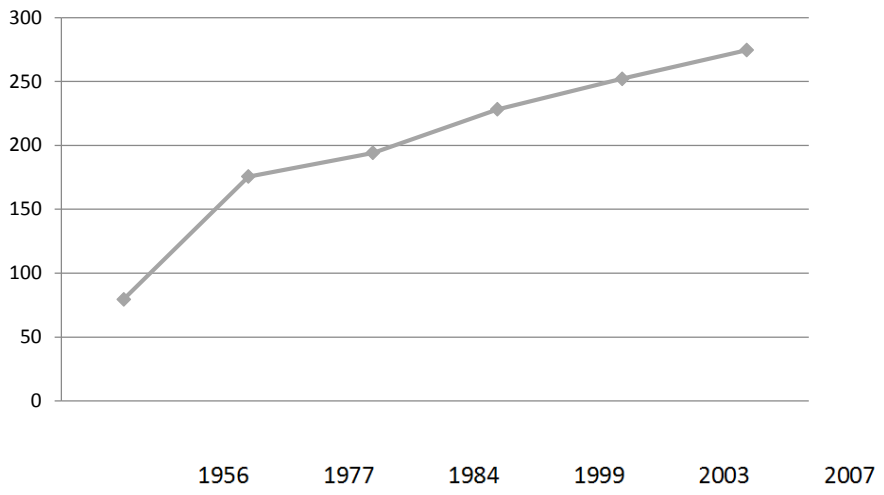


Source: Junta de Andalucía (2014).

As in Spain as a whole, Figure 1.4 shows that the land artificialisation rate in Andalusia increased steeply between 1956 and 2007, resulting in an urban expansion which was significantly greater than the region's demographic growth.

This growth of artificial areas has altered the region's development model. The traditional Mediterranean model of urban and territorial development (see Box 1.2) has given way to an increasingly diffuse residential model (Moreira, 2011). The outcomes linked to this new form of development are, according to the Observatorio de la Sostenibilidad en España (OSE, 2010), the occupation of new areas (e.g. for the construction of new transport infrastructure linking previously non-connected areas) and the substantial increase in emission levels, energy use and the consumption of natural resources such as water (OSE, 2010).

Figure 1.4 Evolution of the constructed surface index per year in Andalusia (m^2 per person)



Source: Moreira (2011).

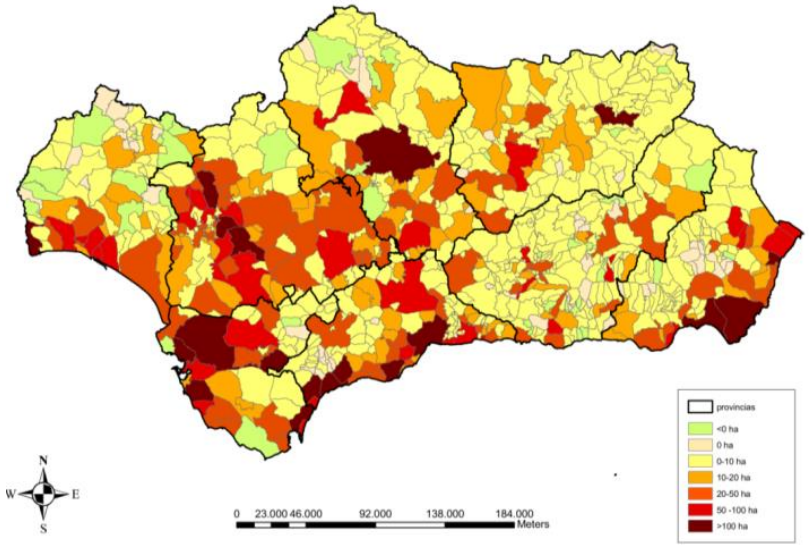
Box 1.2 The traditional Mediterranean urban model

Traditional urban systems in the Mediterranean are characterised by a non-polarised model of cities structured around regional centres, mid-sized cities and networks of small cities. The Mediterranean model is considered by some experts as the paradigm of sustainable urban development. Its main features are:

- compact cities with a clear division between urban and rural areas;
- multi-functional public space;
- high levels of social cohesion as a result of constant interaction among different social groups;
- a highly resource-efficient model;
- communities are attached to the rural surroundings, which is necessary for the provision of primary goods;
- all basic goods and services are provided at local level;
- an active community life and a strong sense of belonging.

Source: Moreira (2011).

Figure 1.5 Increase of artificial surfaces per municipality in Andalusia, 2003–2007 (ha)



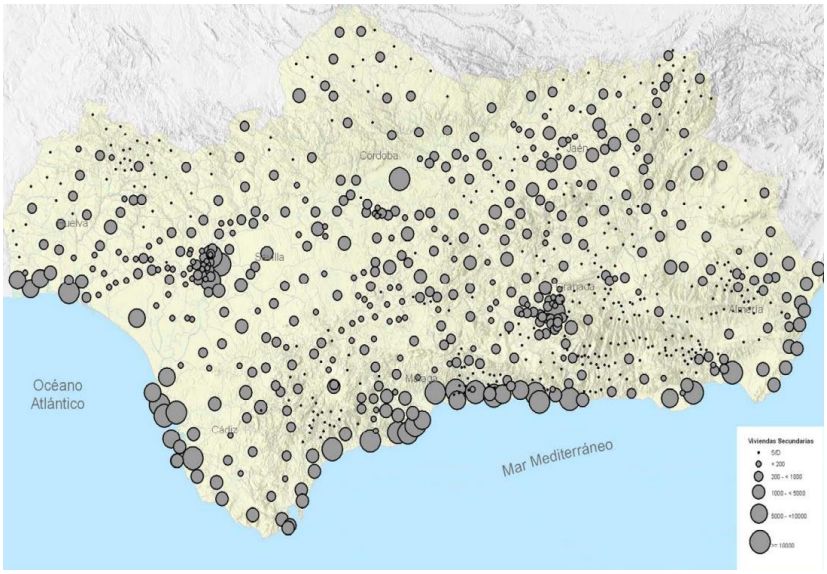
Source: Junta de Andalucía

The expansion of artificial areas has been particularly intense in coastal areas (see Figure 1.5). An illustrative example of these trends is found in the Costa del Sol area (Málaga), a coastal region with an economic structure based on tourism (including residential tourism) (Galacho, 2002).

Indeed, in Andalusia, there has been a substantial increase in the number of secondary residences in recent decades, especially in the coastal area. According to the draft Coastal Corridor Protection Plan of Andalusia, which is currently in development, about 21 % of residences in the coastal areas are secondary residences, whereas 13 % of residences are secondary residences in Andalusia as a whole. More recently, urban expansion has increasingly affected interior rural areas, the economic structure of which has been traditionally based on agriculture. As described by Galacho (2010), urban expansion in these regions does not follow a process of integration in the territory, but, rather, can be described as a spontaneous, unplanned process of suburban sprawl, derived from a growing demand for secondary residences in these areas; as a result, traditional agricultural activities are being replaced by residential tourism.

Figure 1.6 illustrates the development of residential tourism which, as described above, mainly affects the coastline area, but is increasingly spreading throughout interior rural areas.

Figure 1.6 The number of secondary residences per municipality, 2011



Source: Documento del Plan de Protección del Corredor Litoral de Andalucía (2013).

According to one of the experts consulted for this report, these trends in land take in Andalusia have remained relatively stable despite the recent economic downturn, and are expected to pick up in the near future, particularly in the coastal Mediterranean areas.

1.2.2 Land-take drivers in Spain and Andalusia

Three main drivers of the increase in artificial land in Spain — and Andalusia — in recent decades have been identified (OSE, 2006):

1. public policies in Spain in recent decades have encouraged the shift from a traditionally compact urban model to an increasingly diffuse residential sprawl;
2. the economic growth model of recent decades has been increasingly based on land-intensive sectors (such as construction, transport and tourism) ([4]);
3. there have been high levels of investment in infrastructures (i.e. transport, energy, information and communication technologies (ICT) and water sectors), particularly in transport infrastructures.

The first driver (i.e. urban sprawl) can be explained by two historical factors (Moreira, 2011). First, Spanish '*desarrollismo*' policies in the 1960s promoted lower density urban habitats and disperse urban development as a means to enhance economic growth. This model was conceived as a feedback loop, whereby urban sprawl increases the need for infrastructure development and motorised vehicle use, which, in turn, increase energy use and associated tax revenues. Second, the expansion in recent years can, to a great extent, be explained by the rapid increase in the availability of cheap land for residential use in urban peripheries, combined with loose (re)zoning regulations. The latter factor, coupled with the economic boom between 2000 and 2008, encouraged not only an increase in dispersed housing, but also a dramatic increase in the number of second residences in touristic areas.

([4]) The pressure of these land-intensive sectors (construction, transport and tourism) on the environment and the associated risks (e.g. increased land use, habitat fragmentation and degradation of ecosystems) were identified in the National Strategic Reference Framework for Spain (2007–2013) as main environmental challenges for the country.

This has had a particularly important impact in Andalusia, where — as explained in the previous section — urban sprawl is increasingly taking place in inland rural regions in addition to coastal areas.

The main causes of sprawl in the rural areas of Andalusia (see Box 1.3) have been extensively analysed by one of the experts consulted for this study (Galacho, 2010). First, some municipalities do not have spatial plans; if municipalities do have such plans, they fail to meet the requirements of the Urban Planning Law of Andalusia (see Section 1.4.1 below). Second, the value placed on municipal rural and natural areas is low (as forested and agricultural areas may not lend themselves to straightforward valuation), and urban plans are thus relatively ineffective at establishing the best use of these areas.

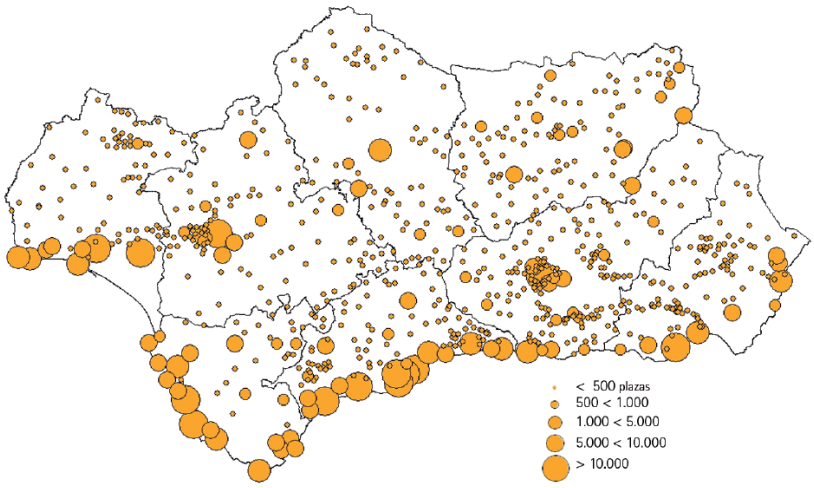
Box 1.3 Problems derived from urban sprawl in the inland rural areas of Andalusia

- Environmental impacts and landscape fragmentation.
- Increasing demands for basic public services (e.g. sewage, street lighting and recreational spaces) by sporadic residents; these demands cannot be met because of a lack of sufficient municipal resources.
- Long judicial proceedings derived from the concession of construction permits that are found to be illegal after their execution, a situation that is difficult to reverse.

Source: Galacho (2002).

The second driver (i.e. an economic model based on land-intensive sectors) has been particularly marked in Andalusia, where tourism and construction have been the main economic engines of the region. As shown in Figure 1.7, the tourism sector is largely concentrated along the coastline, with significant numbers of municipalities having 10 000 or more beds. As regards the construction sector, its contribution to both output and employment remained consistently above the national average in the years prior to the 2008 economic crisis (see Figure 1.8).

Figure 1.7 Tourist accommodation per municipality in Andalusia, 2011



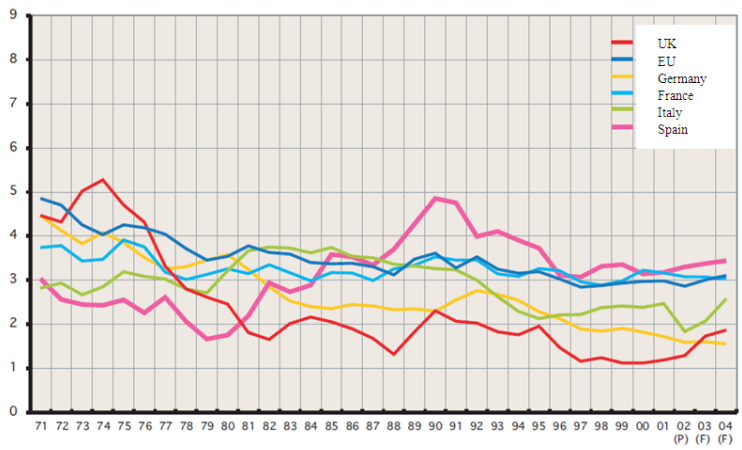
Source: Junta de Andalucía (2013).

Figure 1.8 Construction sector: evolution of its contribution to gross value added and employment, 2003–2012 (%)

Source: Junta de Andalucía (2013).

The third driver (i.e. high levels of infrastructure investment) has also been very relevant at both national and regional levels. As shown in Figure 1.9, since its EU accession, Spain has consistently been one of the highest investing (relative to gross domestic product, GDP) European countries with regard to transport infrastructure. This can be explained by the increase in the amount of EU Cohesion Policy funding made available to Spain, in order to improve and increase its infrastructure network. In addition, governments, at national and regional levels, have favoured large-scale infrastructure developments. This is, among other reasons, because large infrastructure projects have traditionally lent themselves to easier and quicker absorption of EU co-funding. They are also a factor of political visibility.

Figure 1.9 Evolution of transport infrastructure investment (% of GDP) per country, 1971–2004



Source: Ministerio de Fomento (2014).

This infrastructure expansion trend has been particularly acute in the case of Andalusia. Indeed, the artificial areas that have experienced the highest growth in relative terms are those covered by transport infrastructure (there was a 183 % growth in artificial areas between 2000 and 2006,

according to OSE (2010) ([5])). In addition, this increase can also be associated with urban sprawl: as relatively remote areas (e.g. rural inland areas) become more easily accessible, demand and incentives for urbanising them increase.

1.2.3 Identification of relevant stakeholders

As presented in the conceptual framework for the evaluation of the impacts of EU policies on land take and land degradation (Chapter 2 of EEA Report No 8/2016), a variety of stakeholders can influence policy outputs at Member State level, as well as at regional level, and thus, ultimately, influence the results of sectoral policy. Understanding the processes associated with these outputs is therefore crucial for evaluating policy impacts. The analysis of trends and drivers of land-related impacts, as presented in this section, has identified a set of key stakeholders that typically shape, either directly or indirectly, the processes of expansion of artificial land in Spain and, in particular, Andalusia. These are listed in Table 1.3 for illustrative purposes (stakeholders relevant to specific policies or sectors, as well as their interactions, need to be identified on a case-by-case basis).

Table 1.3 The key stakeholders that influence land-take trends in Andalusia

Type of stakeholder	Relevant stakeholders identified
Public authorities	National authorities
	Regional authorities
	Local authorities
Private sector	Construction and real estate sector
	Tourism sector
	Transport sector
	Agriculture sector
Private actors	Land owners
Non-governmental organisations (NGOs)	Environmental protection NGOs

Source: Milieu elaboration.

1.3 Policy objectives and coherence

The environmental dimension has been integrated as a cross-cutting aspect in territorial planning and sectoral planning, at both national and regional levels. This section analyses the extent to which EU land objectives have been integrated with strategic planning in Spain and, particularly, in Andalusia. To this end, it focuses on two policy areas that, because of their direct impacts on land use and land degradation, are crucial for the analysis: (1) territorial and urban planning; and (2) transport infrastructure. The legal framework of each of these policy areas and its coherence with EU land objectives are briefly presented here. Section 1.4 discuss the main implementation-related findings of the research.

1.3.1 Territorial and urban planning in Spain: the case of Andalusia

In Spain, competences on territorial planning were devolved to autonomous communities in 1978. Therefore, regions are responsible for the development of their own spatial planning legislation. Nevertheless, a national land law (2008) ([6]) establishes the basic conditions required to guarantee the

([5]) In Spain, there was a 446 % growth in land covered by transport infrastructure between 1987 and 2006, according to OSE (2012).

([6]) Real Decreto Legislativo 2/2008, de 20 de junio, por el que se aprueba el texto refundido de la Ley de suelo.

equality of rights and the fulfilment of constitutional duties associated with land, and a number of economic and environmental principles. Legislation regulating contaminated land is also in place at national level ([7]).

In Andalusia, spatial planning lies within the competence of the Ministry of Environment and Spatial Planning of the Andalusian regional government (Junta de Andalucía), and it is regulated in accordance with Law 1/1994 ([8]). Subsequently, several instruments have been put in place in order to implement this law, as described below.

- **The Spatial Plan of Andalusia (POTA)** ([9]), approved in 2006, establishes the general strategic vision and the legal framework for territorial planning and urban development in Andalusia. It has three main goals: (1) to enhance a model of compact, functionally and economically diverse cities; (2) to boost the competitiveness of the different areas of the territory; and (3) to foster territorial cooperation. It comprises strategies of territorial development and strategies for the system of cities, which mainly refer to networks of cities; regional networks of transport, energy, ICT and water provisions; the system of protection for the territory (e.g. risk prevention, and natural and cultural patrimony); and the regional integration in national and European development.
- **The Coastal Corridor Protection Plan of Andalusia** ([10]), currently under development in accordance with Decree-Law 5/2012 ([11]). This is an emergency measure on urban development, the objective of which is to protect non-urbanised areas along the Andalusian coastline and thereby prevent the degradation of its valuable ecosystems and landscapes, as well as improve the quality of the coastal corridor. It affects 52 municipalities on the coast of Andalusia which have not adapted their spatial plans in accordance with the POTA.
- **Spatial plans at sub-regional level** define the territorial structure and the networks of articulation, such as transport and ICT networks. They also regulate the functions of the territory and the systems of territorial protection and risk prevention. Figure 1.10 illustrates the areas included in the different sub-regional spatial plans.
- **The Urban Planning Law of Andalusia** ([12]) aims to regulate urban development and urban land use in Andalusia. Most competences in the area of urban planning lie with local authorities.

([7]) Ley 22/2011, de 28 de julio, de residuos y suelos contaminados; Real Decreto 9/2005, de 14 de enero, por el que se establece la relación de actividades potencialmente contaminantes del suelo y los criterios y estándares para la declaración de suelos contaminados.

([8]) Ley 1/1994, de 11 de enero, de Ordenación del territorio de la Comunidad Autónoma de Andalucía.

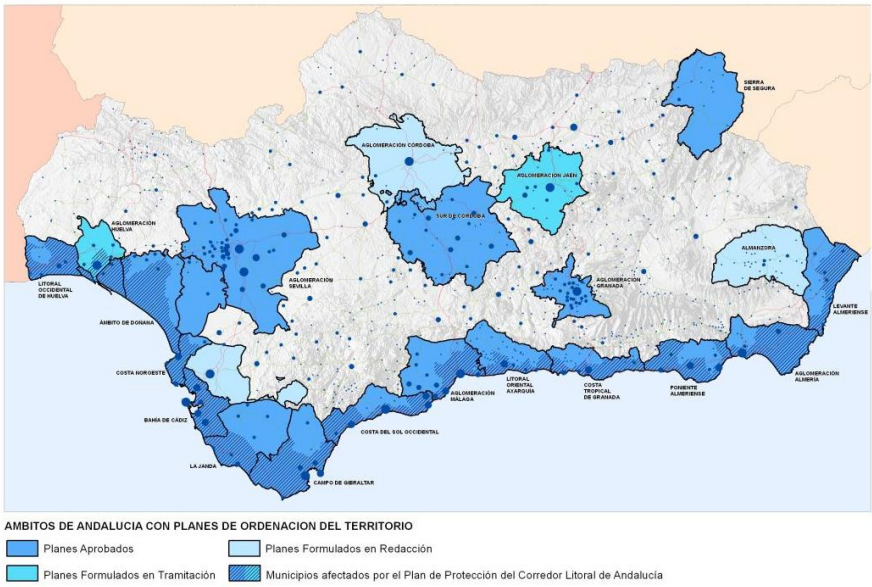
([9]) Plan de Ordenación del Territorio de Andalucía (POTA). Decreto 206/2006, de 28 de noviembre.

([10]) Plan de Protección del Corredor Litoral de Andalucía.

([11]) Decreto-Ley 5/2012, de 27 de noviembre, de medidas urgentes en materia urbanística y para la protección del litoral de Andalucía.

([12]) Ley 7/2002, de 17 de diciembre, de Ordenación Urbanística de Andalucía.

Figure 1.10 Sub-regional spatial plans in Andalusia, 2014



Source: Junta de Andalucía.

1.3.2 Transport planning in Spain: the case of Andalusia

At the national level, the Strategic Infrastructures and Transport Plan (PEIT) ([13]) highlights that the construction of transport infrastructures has negative environmental effects resulting from increased land take and landscape fragmentation (see Box 1.4). The Environmental Impact Statement introduces several mitigation measures in order to reduce the negative impacts of these infrastructures. Nevertheless, it is stressed that it is difficult to completely compensate for progressive land take and fragmentation, and the negative effects of this on biodiversity.

At the regional level, the Infrastructure Plan for Sustainable Transport in Andalusia (PISTA) ([14]) also acknowledges this. PISTA incorporates a diagnosis of the sustainability challenges of the transport sector, and identifies land take and land fragmentation as negative externalities of transport infrastructure ([15]). In this regard, road infrastructure (which occupied 80 % of the total surface covered by transport infrastructure in 2005) is the highest consumer of land, followed by rail infrastructure (which occupied almost 9 %) ([16]) (Table 1.4).

([13]) PEIT: Plan estratégico de infraestructuras y transporte 2005–2020. Ministerio de Fomento.

([14]) Plan de Infraestructuras para la Sostenibilidad del Transporte en Andalucía (PISTA 2007–2013): Decreto 457/2008, de 16 de septiembre de 2008. Consejería de Obras Públicas y Transporte, Junta de Andalucía.

([15]) See pages 37 and 38 of the Infrastructure Plan for Sustainable Transport in Andalusia (PISTA).

([16]) Plan de Infraestructuras para la Sostenibilidad del Transporte en Andalucía (PISTA 2007–2013).

Table 1.4 Land covered by transport infrastructure in Andalusia, by mode, 2005

Infrastructure	Surface of land covered (ha)	Proportion of land covered (%)
Roads	46 874	80.4
Rail	5 190	8.9
Ports	3 415	5.9
Airports	1 781	3.1
Logistic areas	999	1.7
Total	**58 259**	**100**

Note: The calculations of the areas of land covered by road and rail networks include the public off-road spaces affected.

Source: Plan de Infraestructuras para la Sostenibilidad del Transporte en Andalucía 2007–2013.

Box 1.4 Operational programmes (2007–2013): coherence between economic development and environmental objectives

The National Strategic Reference Framework for Spain (2007–2013) ([17]) identified the investment in transport infrastructure as a strategic objective aimed at fostering economic competitiveness and growth, an argument that is subsequently presented in all regional and multi-regional operational programmes (OPs) ([18]). An analysis of the coherence of transport policy objectives and environmental objectives is presented in the Cohesion Fund–European Regional Development Fund's (ERDF's) OP for the period 2007–2013 ([19]); this establishes a strategy in the areas of transport and environment to be co-financed with EU funds ([20]). In this regard, it is stressed that 'transport strategy is hardly compatible with environmental conservation, primarily due to the impacts associated with the construction of new infrastructures, which directly affects the natural environment in terms of land take, impact on the physical and biotic environment, and landscape alteration' ([21]). Nevertheless, it is subsequently pointed out, nevertheless, that the inexistence of such infrastructures would be a considerable hindrance to economic development, and therefore justifies the investments are justified on the grounds of overriding public interest. The document also highlights the need to minimise the environmental impact of transport infrastructure development by following adherence to strong environmental controls by competent authorities.

With regard to the process of selecting co-financing actions within the ERDF OP for Andalusia (2007–2013), several general criteria for environmental prioritisation are applied. As shown in Table 1.5, some of these criteria relate to land use and are thus in line with land-related EU objectives.

([17]) Marco Estratégico Nacional de Referencia de España 2007–2013.

([18]) Including the ERDF's Operative Programme for Andalusia 2007–2013.

([19]) Programa Operativo del Fondo de Cohesión-FEDER 2007–2013.

([20]) This analysis is based on the SEA of the programme and the subsequent environmental sustainability report.

([21]) Programa Operativo del Fondo de Cohesión-FEDER 2007–2013, p. 134.

Table 1.5. Environmental prioritisation criteria in the ERDF OP for Andalusia (2007–2013)

Transport projects	Specific environmental prioritization criteria	Impact indicators (monitoring)
Rail and road infrastructure	• Promote actions to improve the environmental performance of existing infrastructure (excluding mandatory measures derived from environmental impact statements) • Prioritise actions that do not cause fragmentation of habitats • Prioritise actions that enhance the conservation of biodiversity and landscapes	• Number of actions and investment in improving the environmental performance of existing infrastructure • Surface (km) of forests and other habitats of interest affected
Airports	• Promote actions to improve the environmental performance of existing infrastructure (excluding mandatory measures derived from environmental impact statements) • Prioritise actions that do not affect Important Bird Areas	• Population (number of inhabitants) affected by noise pollution • Size of Important Bird Area affected (ha)
Ports	• Prioritise coastal actions that incorporate ecological design and integrated coastal planning	• Surface (ha) and length (km) of coastline affected

Source: Memoria Ambiental del Programa Operativo FEDER de Andalucía (2007–2013) ([22]).

The measures described in the PISTA take into consideration these concerns. For example, the Plan indicates that, in metropolitan areas, urban planning and transport planning should be integrated; this is in line with EU objectives. At the same time, it introduces a requirement for the development of an Accessibility, Safety and Conservation of Road Network Plan ([23]), with a view to enhancing the sustainability of road construction by promoting the use of marginal land, and adopting measures to guarantee that infrastructures are well integrated with the environment in protected areas. Nevertheless, although the Plan includes a number of indicators for monitoring purposes (including those related to land take), it does not incorporate specific measures related to land take or actual targets linked to those indicators.

The analysis of the different strategic papers at national and regional levels indicate that strategic planning at regional level is coherent with EU objectives; both the diagnosis of the environmental problems derived from the construction of transport infrastructure, the establishment of principles and the objectives of the action are entirely in line with relevant EU objectives. Nevertheless, as highlighted by some of the regional experts interviewed in the context of this study, few specific measures aimed at addressing the environmental problems associated with transport infrastructure development are defined in these strategic documents. It must also be noted that planning documents

([22]) Resolución conjunta de la secretaría general para la prevención de la contaminación y el cambio climático del ministerio de medio ambiente y de la secretaría general de presupuestos y gastos del ministerio de economía y hacienda sobre la memoria ambiental del Programa Operativo FEDER de Andalucía (2007–2013).

([23]) Plan para la Mejora de la Accesibilidad, la Seguridad y la Conservación de la Red de Carreteras de Andalucía.

seldom include specific targets related to land use and land fragmentation, thus allowing a great amount of discretionary power at the implementation level.

1.3.3 Strategic environmental assessments and environmental impact assessments in Andalusia

Law 21/2013 ([24]) on Environmental Assessment establishes the rules for the environmental assessment of programmes, plans and projects that might potentially have significant effects on the environment ([25]). In Andalusia, Law 7/2007 ([26]) on the Integrated Management of Environmental Quality regulates environmental evaluations in order to prevent and control the impacts that plans and programmes might have on the environment in the region of Andalusia.

Plans and programmes related to transport, urban and territorial planning, or otherwise affecting land use, have to be evaluated following the requirements of law. Evaluations also need to be undertaken if required by Natura 2000 legislation ([27]).

1.3.4 Nature protection in Andalusia

Law 42/2007 on Natural Heritage and Biodiversity ([28]) transposes the Habitats and Birds Directives into Spanish legislation. In addition to Natura 2000 sites, this law regulates natural protected sites designated at national level, as well as areas protected by other international conventions or agreements.

In addition, Andalusia has developed its own nature protection legislation, namely the Andalusian Law of Natural Protected Areas ([29]), which regulates the Natural Protected Areas Network ([30]); this network is an integrated system of all the natural spaces in Andalusia that enjoy special protection under regional, national or EU regulations, as well as international conventions. It encompasses the most valuable ecosystems of Andalusia and covers a total area of approximately 2.7 million ha (2.67 million ha of which are on land), which makes it the largest nature protection network in Europe ([31]). According to the regional government officials consulted, these laws play a key role in defining territorial composition on a regional level, and have actively contributed to the improvement and preservation of the environmental values and resources of Andalusia. The objectives of these

---

([24]) Ley 21/2013, de 9 de diciembre, de evaluación ambiental.

([25]) This law merges Law 9/2006 on the evaluation of the effects of certain plans and programmes on the environment (which transposed Directive 2001/42/CE into Spanish legislation), with Royal Decree 1/2008 approving the revised text of the Law on Environmental Impact Assessment of Projects and later modifications to the text.

([26]) Ley 7/2007, de 9 de julio, de Gestión Integral de Calidad Ambiental.

([27]) The areas subject to these evaluation procedures are listed in Annex I, categories 12.1 and 12.2., of Law 7/2007 on Integrated Management of Environmental Quality.

([28]) Ley 42/2007, de 13 de diciembre, del Patrimonio Natural y de la Biodiversidad.

([29]) Ley 2/1989, de 18 de julio, por la que se aprueba el inventario de Espacios Naturales Protegidos de Andalucía y se establecen medidas adicionales para su protección.

([30]) Red de Espacios Naturales Protegidos de Andalucía (RENPA).

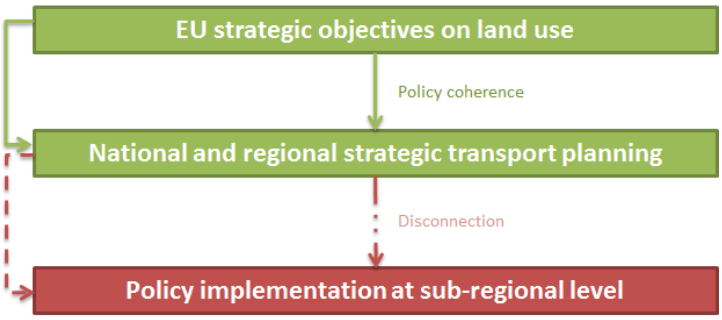
([31]) http://www.juntadeandalucia.es/medioambiente/site/portalweb/menuitem.f497978fb79f8c757163ed105510e1ca/?vgnextoid=007fee9b421f4310VgnVCM2000000624e50aRCRD&vgnextchannel=3bdd61ea5c0f4310VgnVCM1000001325e50aRCRD.

laws, which restrict land-use changes and seek to preserve ecosystems, are thus coherent with the land-related EU objectives.

1.4 The policy implementation process

This section discuss the main implementation-related findings of the research (see Figure 1.11).

Figure 1.11 Policy implementation



Source: EEA/Milieu elaboration.

1.4.1 Cohesion Policy and transport infrastructure in Spain and Andalusia

Spain has been one of the main recipients of Cohesion Policy funds since its accession to the European Community in 1986. The total amount of Cohesion Policy funds allocated to Spain has varied over time, with the maximum being allocated during the 2000–2006 programming period (see Table 1.6) ([32]). The analyses in this section and the following section focus on spending for transport, in particular for roads.

Table 1.6 Cohesion Policy funds allocated to Spain and Andalusia, per programming period (million EUR, 2004)

	1986–1988	**1989–1993**	**1994–1999**	**2000–2006**	**2007–2013** ([a])
Spain	4 822	18 707	50 654	61 890	31 457
Structural funds ([b])	–	–	41 080	49 659	28 207
Cohesion funds	–	–	9 574	12 322	3 250
Andalusia	1 167	3 027	8 398	13 556	14 927
Share of national amount	24.2 %	16.2 %	16.6 %	21.9 %	47.5 %

([a]) Rural development and fishery funds are not included.

([b]) Data include the European Agricultural Guidance and Guarantee Fund (EAGGF) EAGGF and the Financial Instrument for Fisheries Guidance (FIFG) until 2006.

Note: Data refer to EU funds, but do not include co-financing funds.

Source: European Commission, Ministerio de Economía y Hacienda, Junta de Andalucía.

([32]) It should be noted that differences might arise between the allocation at the planning stage to the actual expenditure at the implementation stage.

Table 1.7 presents the percentage of the total Cohesion Policy funds allocated to each of the thematic priorities for the 2007–2013 programming period. Transport constitutes almost 22 % of this total, a percentage that is considerably higher than the EU-15 average ([33]).

Table 1.7 Percentage of Cohesion Policy funds allocated to Spain by thematic priorities, 2007–2013

Thematic priority	Spain	EU-15	EU-27
Climate change	13.9 %	11.4 %	13.9 %
Innovation	25.9 %	30.1 %	24.9 %
Small and medium enterprises	9.7 %	10.6 %	7.8 %
Information society	3.3 %	4.2 %	4.4 %
Transport	21.7 %	15.6 %	24.0 %
Energy	1.3 %	3.0 %	3.1 %
Environment	34.6 %	25.8 %	30.3 %

Source: EC (2010).

In parallel, Andalusia has been a major recipient of EU Cohesion funds over the past decades, an significant percentage of which have been invested in transport infrastructure. According to the ERDF OP for Andalusia 2007–2013 ([34]), transport infrastructure accounted for approximately 26.8 % (i.e. approximately EUR 1.8 billion) of the total ERDF funds allocated to the region during this programming period. If national and regional contributions are added up, the percentage of funds allocated to transport infrastructure approaches 29 % of total funding. As shown in Table 1.8, most of these investments were allocated to the construction of rail and road infrastructure (74 % of the total), both of which are high consumers of land. Urban transport and multimodal transport each received only about 1 % of the total.

Table 1.8 Allocation of ERDF funds among different transport modes (2007–2013)

Transport mode	ERDF funds (million EUR)	Proportion of total (%)
Rail services	250.3	13.7
Rail services (TEN-T)	168.1	9.2
Highways	236.7	12.9
Highways (TEN-T)	191.7	10.5
National roads	55.4	3.0
Regional/local roads	453.7	24.8
Urban transport	20.7	1.1
Multimodal transport	20.7	1.1
Airports	43.5	2.4
Ports	390.0	21.3
Total	**1 830.8**	**100**

Note: TEN-T, trans-European transport network.
Source: Junta de Andalucía (PO FEDER Andalucía 2007–2013).

([33]) The percentage of funds devoted to transport infrastructure has been decreasing with respect to previous programming periods.

([34]) Programa Operativo FEDER Andalucía 2007–2013.

As explained in Section 1.2.2, governments at national and regional levels have favoured large-scale infrastructure developments. Among other reasons, this is because large infrastructure projects have traditionally lent themselves to easier and quicker absorption of EU co-funding. In addition to bridging the gap between the Andalusia transport network and that of the EU ([35]) as a whole, these investments are frequently seen as a way of fostering economic growth in peripheral areas. They are also a factor of political visibility.

This has led to a rapid infrastructure expansion in Spain, and in Andalusia in particular; according to the OSE (2010) ([36]), there was a 183 % increase in artificial areas covered by transport infrastructure between 2000 and 2006. In addition, this expansion has indirectly boosted urban sprawl: as relatively remote areas have become more easily accessible, demand and, consequently, incentives for urbanising them have increased.

Therefore, it can be argued that Cohesion Policy, through the provision of funds devoted to transport, has fostered the rapid development of transport infrastructure in Andalusia (and Spain as a whole) and has , therefore, caused significant environmental impacts in terms of land take and land fragmentation, both of which have been justified at the planning and implementation stages on the grounds of overriding public interest (i.e. the achievement of socio-economic development and territorial cohesion objectives). Nevertheless, there are other factors that have played a key role in shaping the impacts of Cohesion Policy in Andalusia: the territorial planning framework, the role of key stakeholders and the particular structure of incentives. In addition, the expansion of transport infrastructure is only one of the drivers of land take in the region.

As already noted in Section 1.2, transport expansion is part of a trend of expansion of artificial areas; this process is led by local authorities, as they have most competences with regard to urban planning. This has been criticised by some of the experts consulted for this study as being intrinsically problematic, as municipalities tend to be highly dependent on tourism and construction sectors for their economic survival (because permits account for a significant proportion of their revenues) and this may result in conflicts of interest. Therefore, it can be argued that it is often in the interest of local authorities to approve urban development plans and to grant construction permits for projects that are not entirely in line with land-related EU, national or regional objectives.

In the same vein, this dependence on revenue from construction permits and related developments may introduce a systematic bias, not only in the way development projects are appraised and assessed (e.g. economic gains may be given a disproportionate weight compared with environmental impacts), but also with regard to a local population's perception of those developments (see the description of the 'El Algarrobico Hotel' case in Box 1.5). This situation, combined with a relatively complex legal and administrative framework that de facto gives municipalities the power to block policy making and the granting of permits, amounts, according to some of the experts consulted, to a growing disconnection between strategy and implementation. Whereas national and regional strategic planning and legislation are in line with EU land objectives, and a wealth of data and information is regularly produced to monitor the progress towards such objectives (see Section 1.4.4 for more information), developments appear, in many cases, to be driven by other factors.

([35]) Investments in transport infrastructures after the accession of Spain to the European Community were considered necessary in order to bridge the gap between the Spanish transport network and that of the other European countries.

([36]) In Spain, there was a 446 % increase in the area of land covered by transport infrastructure between 1987 and 2006, according to OSE (2012).

Box 1.5 The 'El Algarrobico Hotel' case ([37])

Located within the Cabo de Gata-Níjar Nature Reserve in the municipality of Carboneras (province of Almería), the construction of the Algarrobico Hotel, of 21 floors and 410 rooms and situated only a few metres from the shoreline, was halted when it was almost complete in 2005. It was considered to be illegal, as, according to the Spanish Coastal Law, construction is not allowed within 100 m of the shoreline. In addition, the reserve forms part of the Natura 2000 network. Ecologist groups and some civil society movements in favour of environmental protection have asked for the building to be demolished and the site restored.

Despite this, the developer (the Azata del Sol group) had all the required permits and endorsements, which were issued by Carboneras' Town Hall, the regional government and the Spanish Ministry of Environment. Having made an investment of approximately EUR 48 million, Azata del Sol is claiming financial compensation in the case of demolition, which would also come at a high cost ([38]). In parallel, the majority of residents of Carboneras and nearby villages oppose the demolition; they claim that the hotel would directly create around 100 jobs and indirectly create a further 400 jobs in the region, which suffers from a high unemployment rate ([39]).

1.4.2 Strategic environmental assessment and environmental impact assessment in Andalusia: the choice of policy options

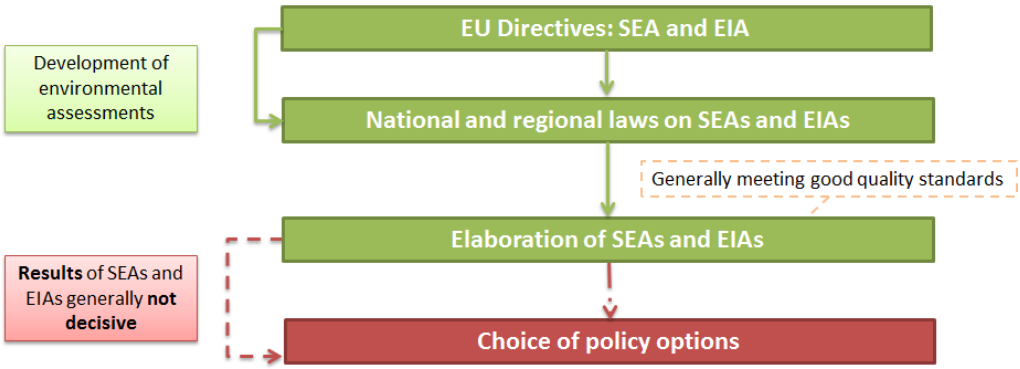
According to the information provided by some of the experts consulted for the report, strategic environmental assessments (SEAs) and environmental impact assessments (EIAs) strictly follow requirements set out in law. They also argued that, as a general rule, the quality of environmental assessments is high (see Figure 1.12). However, other experts appear to be sceptical with regard to the extent to which these assessments are taken into account, and referred to them as 'mere procedural requirements' with few practical effects (e.g. only few options are ruled out altogether as a result of such assessments). The potential for positive socio-economic impacts is frequently considered to outweigh the potential for any negative impacts on the environment in general, and on land take and degradation in particular. For example, in the case of transport infrastructure, improvements with regard to accessibility and the achievement of other territorial development objectives are, in practice, given more weight than environmental concerns. Officials in the regional administration objected to this view and indicated that, whenever appropriate, correcting or compensatory measures are put in place.

([37]) For updated information on the Algarrobico Hotel case, see http://elpais.com/tag/caso_el_algarrobico/a/.

([38]) Around EUR 11 million, according to the College of Architects of Almería.

([39]) http://sevilla.abc.es/andalucia/almeria/20140817/sevi-algarrobico-carboneras-fuenteovejuna-201408162135.html

Figure 1.12 SEA and EIA in Andalusia



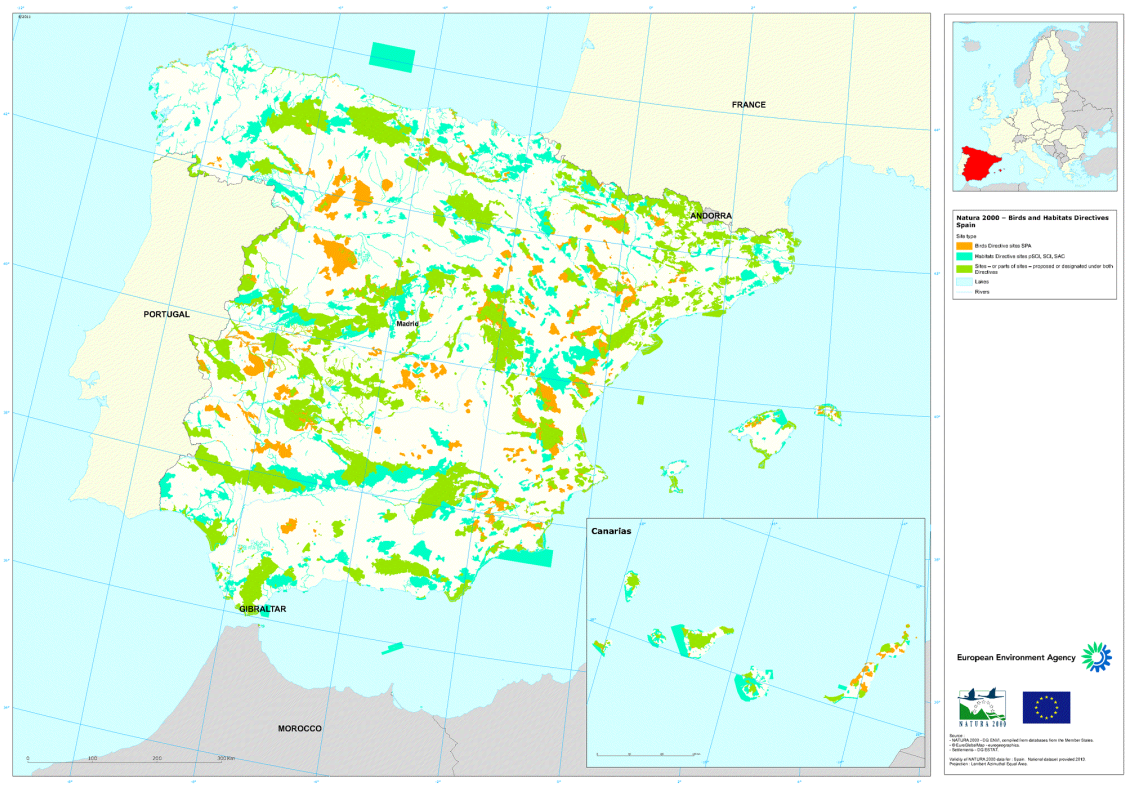
Source: EEA/Milieu elaboration.

1.4.3 Nature protection policy

More than 27 % of Spanish territory (13.7 million ha) is covered by Natura 2000 sites (OSE, 2012). This percentage is slightly higher in the case of Andalusia: 30.5 % of this region is covered by Natura 2000 sites (see Figures 1.13 and 1.14). In total, this amounts to 2.66 million ha which comprise 63 Special Protection Areas (SPAs) for birds and 189 Sites of Community Importance (SCIs), of which 29 are declared Special Areas of Conservation (SACs).

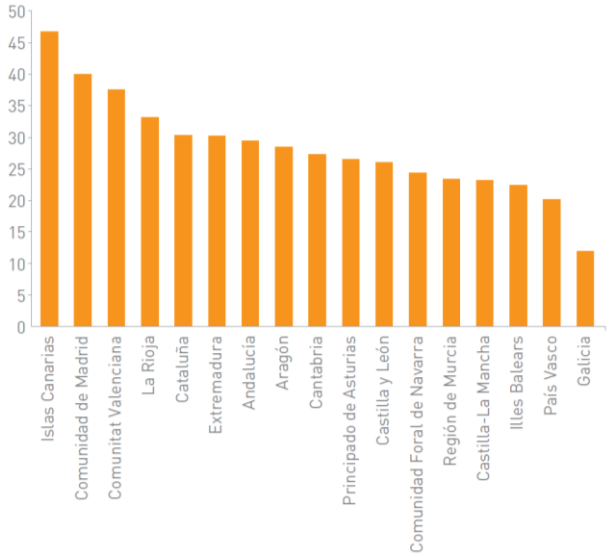
Cohesion Policy has supported biodiversity protection, including spending for Natura 2000 sites: EUR 681 million were provided in the 2007–2013 programming period for Spain as a whole.

Figure 1.13 Spanish territory covered by Natura 2000 sites, 2013



Source: EEA (2013).

Figure 1.14 Spanish territory covered by Natura 2000 sites by autonomous community, 2011 (%)



Source: OSE (2012).

1.4.4 Monitoring and reporting of changes of land use and land degradation in Andalusia

Motivated by, among other factors, the region's vulnerability to erosion and desertification, the regional administration of Andalusia has gathered data and information on land-use changes and land degradation in its territory since 1987. The region has been singled out by some of the experts consulted for this study as having pioneered some of these processes. The advanced techniques used and the accuracy of the data obtained have permitted the periodical release of reports aimed at feeding into policy development and evaluation.

Table 1.9 shows the different systems in place for the analysis of these changes. At the present time, the system used is the SIOSE (Sistema de Información de Ocupación del Suelo en España) Andalucía, which is integrated into the national system of information.

Table 1.9 Systems of information used to monitor changes in land use and land degradation in Andalusia

Information system	Territorial coverage	Temporal coverage ([a])
Mapa de Usos y Coberturas Vegetales	Regional level	1956–2007
SIOSE Andalucía	Member State level	2005–2011
Corine Land Cover programme	EU level	1990–2006

([a]) Data are not available for every year.

Source: Milieu elaboration.

Andalusia has also participated, as a result of the high-quality systems of data gathering, processing and reporting, in a number of European research projects. For example, Andalusia participated in the Prelude ('Prospective environmental analysis of land use development in Europe') project, a European Environment Agency (EEA) project aimed at analysing how environmental scenarios are dependent on changing patterns of land use, climate change, agriculture and demographics. Another example is the Recare ('Preventing and remediating degradation of soils in Europe through land care') project (2013–2017), a project realised within the Seventh Framework Programme of the EU, focuses

on the prevention and remediation of soil degradation in Europe through land care. In particular, a case study on soil contamination in the Guadiamar valley is currently underway.

However, there remains significant room for improvement with regard to the way in which the monitoring, reporting and assessment of changes to land use are perceived by relevant stakeholders. One of the experts consulted for this study highlighted the fact that public authorities (particularly at sub-national level) tend to think about, for example, the identification and geo-localisation of degraded or contaminated soils as something that can harm the local economy ([40]). Therefore, as a result, all of the relevant information might not be considered for policy making and evaluation. Public officials also pointed out that more could be done to harmonise the methodologies used to monitor changes in land use and land degradation at regional, national and European levels.

1.5 Evidence of impacts on land

1.5.1 Cohesion Policy

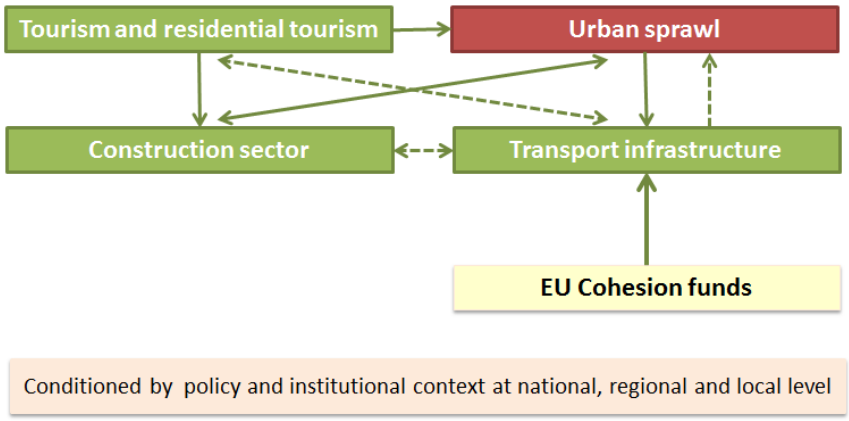
The impacts of EU Cohesion Policy on land take cannot be easily traced given the multiplicity of factors influencing land-use trends in Andalusia. As presented in Section 1.2.2, three main drivers of the increase in artificial land in Andalusia (and, more generally, in Spain) have been identified:

1. public policies fostering the transition from a traditionally compact urban model to an increasingly diffuse urban sprawl;
2. an economic growth model increasingly based on land-intensive sectors, particularly construction and tourism;
3. high levels of investment in infrastructure, particularly transport infrastructure.

As stated in Section 1.2 above, these factors are interdependent. In addition, they are influenced by EU policies and conditioned by the policy and institutional context at national, regional and local levels. Figure 1.15 shows the direct and indirect links between these factors.

([40]) Interview with Galacho (2014). This concern has also been raised in other Member States, including the UK (see Evans, F., 2014, 'Land recycling in the United Kingdom', presentation at the EU Conference on Land as a Resource, Brussels, 19 June 2014).

Figure 1.15 Interrelationship between drivers of land take and the role of EU Cohesion Policy



Note: Continuous arrows imply direct influence, whereas dotted arrows imply indirect influence. It is also important to note that some factors influence each other (bidirectional arrows) while the direction of influence between others is unidirectional.

Source: EEA/Milieu elaboration.

Cohesion Policy has had a direct impact on land in Andalusia (and Spain in general) through the provision of funding that has been used to build an extensive transport infrastructure (mainly roads and rail). The expansion of the transport infrastructure has directly led to an increase in artificial areas in the region (see Table 1.10). In addition, research carried out in the context of this project suggests that it has also promoted, to a certain extent, urban sprawl ([41]). The indirect link between transport infrastructure and urban sprawl has been widely studied in other contexts (see Section 1.1.4). It must be noted that developments in the housing sector (in the form of residential sprawl) have also acted as drivers of transport infrastructure development, as demands for improved accessibility have increased.

Table 1.10 Land covered by road and rail infrastructures in Andalusia, 2005–2011 (ha) ([42])

	2005	2009	2011
Roads	53 321	56 447	58 682
Rail	6 831	6 929	7 325
Total	**60 152**	**63 376**	**66 007**

Note: Data for 2005 do not exactly match the data presented in Section 5.3.2 of EEA Report No 8/2016. This is because of a change in the methodology used to monitor land cover changes.

Source: Junta de Andalucía (SIOSE Andalucía).

In parallel, the tourism and construction sectors have played key roles as drivers of land take, as explained in Section 1.2.2. In many coastal areas of Andalusia, their roles have been mutually reinforcing. Indeed, in part as a result of EU interventions (i.e. infrastructure development including the development of transport infrastructure, social cohesion, employment, environmental protection, etc.) (Garrigós Simón and Palacios Marqués, 2008), the region has become a major tourist destination

([41]) Some areas of transport spending, for example on urban and multimodal transport, may have reduced pressures for sprawl; these, however, have been a minor component of overall transport spending.

([42]) It should be noted that artificial areas cover a total of 4.7% of the total territory of Andalusia in 2011.

and, in particular, it has increasingly attracted residential tourism. Consequently, municipalities have approved expansionary urban development plans and granted permits for a large number of construction projects which, often, did not sufficiently take into account, if at all, potential land-related implications. This has, in turn, reinforced the pre-eminent position of the construction sector as one of the main economic engines in the region (together with tourism). Moreover, opportunities to expand the tourism sector appear to have been one driver in promoting the expansion of transport infrastructure, with regard to both regional and local roads, in order to facilitate the development or increase the attractiveness of rural and relatively remote areas, and national and international connections, in order to facilitate accessibility to the region.

At the same time, it should be noted that spending under Cohesion Policy has also been allocated to areas that might have had a positive impact on land, including biodiversity protection (see Sections 1.4.3 and 1.5.2) as well as the rehabilitation of industrial and contaminated sites, for which EUR 185 million were provided in the 2007–2013 programming period (EC, 2010)

1.5.2 Nature protection policy

In Spain, 42 % of the areas covered by Natura 2000 (5.7 million ha) overlap with the national network of protected areas (Europarc, 2012). This suggests that Natura 2000 has enhanced the protection of nearly 8 million ha that might otherwise have not been protected under Spanish legislation.

Furthermore, in Andalusia specifically, Natura 2000 has protected areas not previously covered by national or regional legislation. Only a small proportion of the total surface area of Natura 2000 sites in the Andalusian territory is covered by artificial areas (0.29 %, compared with 4.7 % of artificial areas in Andalusia as a whole (Rediam, 2014)). Overall, protected areas (many of which are poorly accessible, mountainous areas) have not been as affected by the overall trend for sprawl as Andalusia as a whole has been. In addition, from the mid-1950s to 2007, 22.5 % of agricultural surfaces present in protected areas in Andalusia reverted to natural land (Bermejo et al., 2011)

1.6 Conclusions

Overall, EU policies have played a major role in fostering forward-looking strategic planning in Andalusia (and in Spain as a whole), as well as the development of a range of sustainability and environmental assessments. However, these policies appear to have been unable to curb the expansion of growth via a model excessively reliant on urban sprawl and large-scale infrastructure development, and, at least in the past, Cohesion Policy spending has contributed to infrastructure development. This has been, in part, because of a disconnection between the strategic orientations stated at national and regional level, and the incentive structures that apply at local level. Moreover, Cohesion Policy has played a central role in financing transport infrastructure in Andalusia, including the development of roads, and thus has contributed to sprawl and land take.

Table 1.11 summarises the assessment per evaluation criteria as proposed in the methodological part of the study (Chapter 2 of EEA Report No 8/2016).

Table 1.11 Summary of the assessment per evaluation criteria

Evaluation criteria	Summary of the assessment
Relevance	Land objectives are highly pertinent to respond to the environmental needs of Andalusia and Spain as a whole, given the past and current trends of rapid expansion of artificial surfaces, as well as the levels of vulnerability to desertification and degradation of natural areas
Coherence	Strategic planning at national and regional levels is broadly coherent with EU objectives for land; these objectives are not cited directly, in part because many of them have been formulated more recently than key strategic documents at national and regional levels. The OPs for Andalusia do not refer to EU land objectives. They do contain some relevant objectives for land — for example, the rehabilitation of former industrial or contaminated sites, as well as the protection of biodiversity and Natura 2000 sites
Effectiveness	A disconnection has been found between strategic orientations stated at national and regional levels, and policy implementation at local level. At the same time, environmental assessments have been found to be, according to the experts consulted for this study, not decisive in the process of policy making in a number of cases. This is a result of two main factors: (1) the perceived trade-off between environmental objectives and socio-economic and territorial development objectives; and (2) the complex institutional setting and difficulties with aligning interests at local level with high-level policy objectives
EU added value	The EU has played a major role in: • fostering forward-looking strategic planning, with a focus on environmental objectives; • the development of environmental legislation and enforcement, in relation, for example, to the protection of natural areas; • the development of a range of sustainability and environmental assessments

Source: EEA/Milieu elaboration.

2 Case study: Poland

Photo: © magro_kr.

2.1 Introduction

This case study considers the impacts of EU Cohesion Policy on land in Poland, focusing specifically on spending for transport. The choice of Poland for the case study was based on two main criteria: (1) Poland has been the largest recipient of EU Cohesion funding since 2007; and (2) Poland belongs to the group of (relatively) new Member States that underwent transitions to become market economies in the 1990s. The legacy of the land use and spatial planning patterns that existed under the communist system in Poland might influence current trends; therefore, Poland provides an interesting example that may be representative of other countries of central and eastern Europe.

The case study focuses on the national level, rather than the regional level, as for the Spanish case study, as Poland has a more centralised structure of governance than Spain. At the same time, Poland provides an interesting example, as governance is shifting to the regions. The study looks at one region, Lower Silesia, which is one of the fastest developing regions and is also heavily affected by land degradation due to industrial activities.

As with the Spanish case study, this case study highlights the key roles that the national, regional and local context have played in shaping the impacts of EU spending. At the same time, EU policies, particularly support for investments in roads and other infrastructure, have played major roles in shaping the country's land use patterns. The investments supported by EU finds have been subject to better planning, assessment and monitoring than other investments and this is considered to be a positive impact of EU policies. However, a lack of effective legislation to protect land and local spatial policies that typically focus on short-sighted economic benefits for the municipalities seem to constitute a major hindrance in fostering sustainable spatial planning policies aimed at long-term protection of land against negative phenomena, such as soil sealing, land degradation and urban sprawl.

This case study applies the methodology presented in Chapter 2 of EEA Report 8/2016 and is structured as follows:

- Section 2.2 describes recent trends in land take and discusses the main drivers underlying those trends;
- Section 2.3 provides a description of national policy objectives for development and for Cohesion Policy, identifying land-related objectives and assessing their coherence with EU objectives;
- Section 2.4 focuses on the implementation of Cohesion Policy in Poland, with a focus on transport;
- Section 2.5 outlines the information available on the land-related impacts of Cohesion Policy;
- Section 2.6 provides a summary and conclusions.

2.2 Context

This section provides background information on recent land-use trends in Poland and, more specifically, in Lower Silesia. It is based largely on data collected by the Main Statistical Office of Poland (GUS), which mainly cover the period after 2000.

2.2.1 Background

The total area of Poland amounts to 312 000 km^2. The population density amounts to 123 people per km^2, which is slightly above the EU average of 117 people per km^2 but lower than in most western European countries (e.g. Germany has 229 people per km^2 and the Netherlands has 497 people per km^2 ([43])).

Agricultural land constitutes approximately 60 % of the total surface of the country. The proportion of land covered by forests and shrubs shows a steady upwards trend; in contrast, the area of land used for agriculture decreased by approximately 4 000 km^2 between 2003 and 2009. Built-up areas, including residential, industrial and transport areas, constitute approximately 5 % of the country's area.

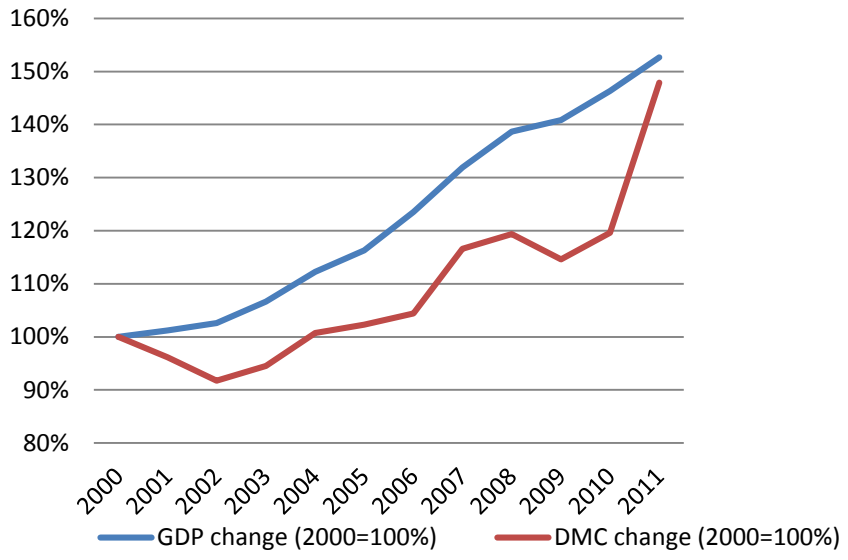
Because of historical and cultural factors, the average farm size in Poland is relatively small and amounts to only 8 ha. Only about 30 % of Poland's approximately 2 million farms generate produce for market, with the others either generating produce for the owners' own subsistence or being essentially abandoned. Forests were, after the Second World War, largely nationalised and have remained so since 1989; over 80 % of Polish forest is currently owned by the state (Bański, 2014a).

Over 8 000 km^2 of land (2.6 % of the country's total area) is classified as 'degraded', as a result of mining or industrial use, as well as the erosion of agricultural land (GUS, 2013).

In contrast to most of the EU, Poland has experienced constant economic growth over the last decade. Both GDP and the use of materials (domestic material consumption (DMC)) have grown during this time, as presented in Figure 2.1. Minerals have been an important component of this DMC, particularly aggregates and other materials used for the construction of buildings and infrastructure.

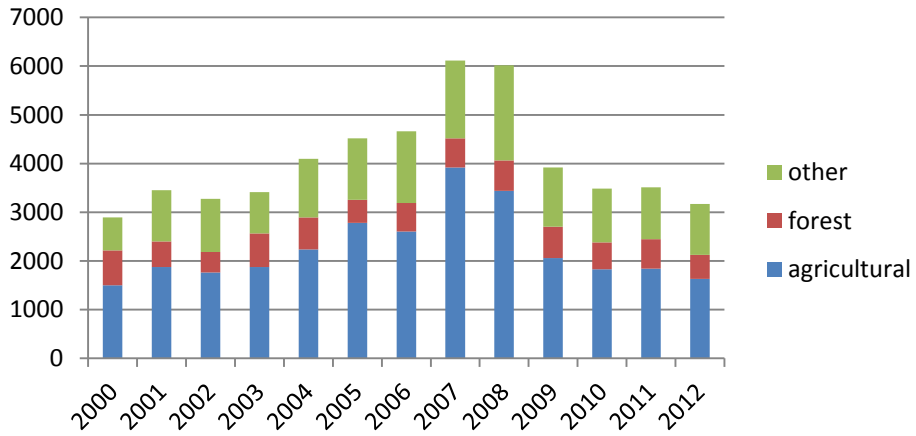
([43]) Eurostat 2012 statistics.

Figure 2.1 GDP and DMC dynamics in Poland for the period 2000–2011



Although the area of agricultural land that has changed designation increased annually between 2000 and 2008, this area decreased between 2009 and 2012 (see Figure 2.2). Moreover, about 50–60 % of the agricultural land that has been converted for other uses is classified as having the most fertile soils ([44]).

Figure 2.2 Agricultural and forest land in Poland acquired annually for other purposes (ha)

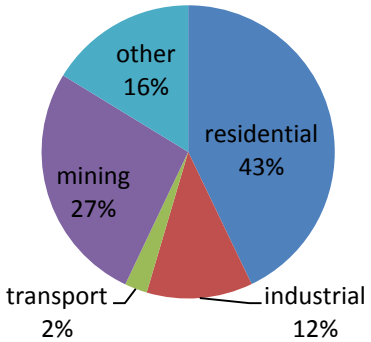


Source: Main Statistical Office of Poland (GUS), 2013.

The most common designation of the acquired land is for built-up residential areas. Figure 2.3 shows a more detailed breakdown of the purposes for which taken land is destined.

([44]) Categories I–III of the Polish classification system of soil quality, which comprises six categories.

Figure 2.3 Designation of land acquired from agricultural and forest areas



Source: Main Statistical Office of Poland (GUS), 2013.

It should be noted that the data presented here refer to land **designation**, as registered in Polish municipalities. Changing land designation from agricultural to other uses does not mean that the land has actually been converted; a common practice is to change land designation in municipal registers so that it is potentially possible to use it for construction purposes. As a result, the market price of the land increases; however, such a change does not result in higher land (cadastral) taxes, so owners have a financial incentive to apply for such a 'virtual' transformation of land use, knowing that once they decide to sell the land, its price will be higher ([45]).

These considerations highlight the importance of the agricultural sector in the process of land conversion and land take (see Box 2.1). Since accession to the EU, the economic conditions related to market production for Polish farmers has gradually improved, mostly as a result of Common Agricultural Policy (CAP) instruments, such as direct payments, which increase economic viability and can also stimulate environmentally friendly agricultural practices (Kulikowski, 2012). At the same time, there are opportunities to increase agricultural productivity and thus profitability for farmers. However, in the vicinity of growing urban areas, the prospect of the conversion of land designation and its sale for development may still be more appealing. In such cases, of course, the market value of the land does not reflect any losses of ecosystem functions as a result of soil sealing.

([45]) Presentation and further communication with Piotr Fogel, one of the participants of the project workshop held on 16 October in Brussels.

Box 2.1 The Act on Protection of Agricultural Soils

The 1995 Act on Protection of Agricultural Soils ([46]) is supposed to protect high-quality agricultural soils in rural areas from being used for purposes other than agriculture. The Act states that during the construction or modernisation of buildings or industrial units, care should be taken to limit possible negative impacts on soils. While assigning land to purposes other than agriculture or forestry, priority should be given to fallow land and, subsequently, to land covered with soil with a relatively low productive potential. Changing the designation of land with high-quality soils (i.e. soils classified as categories I–III based on the Polish classification system of soil quality) from agricultural to other uses, outside city borders, requires consent from the Ministry of Agriculture. Changing the designation of forestry areas that belong to the Treasury requires consent from the Ministry of Environmental Protection. Such changes in land designation can be granted only for areas covered by local spatial management plans. The majority of land in Poland is not covered by such plans, a factor that slows the rate of land take and soil sealing.

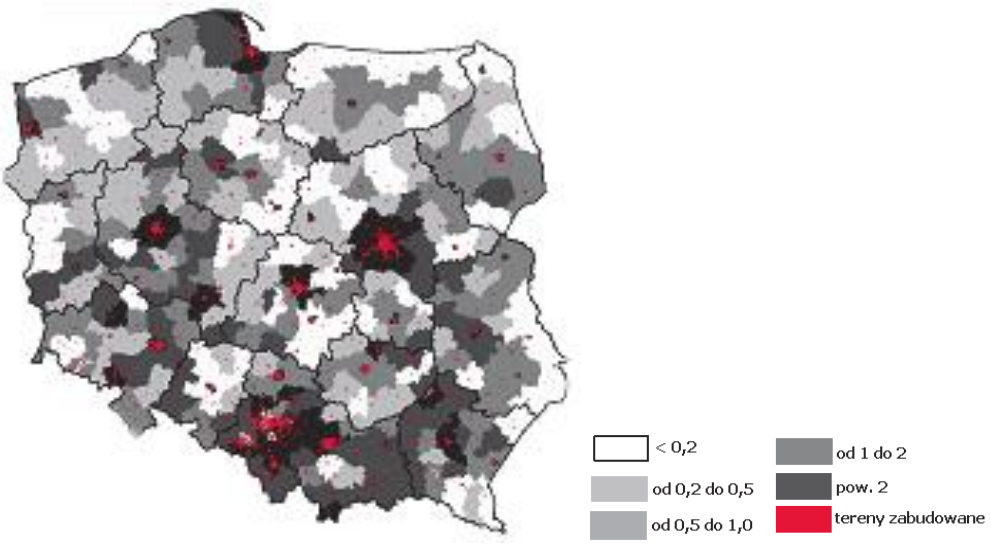
There are charges associated with the conversion of high-quality soils to other uses, and the fee level depends on the soil class (i.e. the higher the soil quality, the higher the fee). However, according to the Act, the fee can be reduced by an amount equal to the market price of the land per ha; therefore, in practice, the fee is reduced to zero in the majority of cases, since market prices typically exceed the fee level. Consequently, the fee, which in theory could create a disincentive for land take and soil sealing, does not play an important role.

Source: Act on Protection of Agricultural Soils.

The expansion of built-up areas is expected to continue. The *Strategy of sustainable development of rural areas, agriculture and fishery* (MRiRW, 2012b) forecasts that between 2008 and 2030, approximately 260 000 ha will be taken from agricultural areas and designated for residential purposes. Figure 2.4 shows the expected increase of built-up areas per province. Red spots indicate built-up areas while the darkest grey colour indicates regions in which the built-up areas are expected to increase by more than 2 %.

([46]) OJ No 16, item 78, of 1995, with later amendments.

Figure 2.4 Forecasted increase in the proportion of built-up areas by 2030 in Polish provinces



Source: MRiRW, 2012b.

2.2.2 Regional level: Lower Silesia

Lower Silesia (Dolnośląskie Voivodeship) is one of the 16 voivodeships (regions) of Poland, and is situated in the south-western part of the country. Its capital and largest city is Wrocław, situated on the Odra River. Lower Silesia is one of the richest regions in Poland — the level of GDP per capita is approximately 113 % of the country average placing this voivodeship in second place in the ranking of the country's wealthiest regions, behind the capital region of Mazowieckie (GUS, 2013). Since 2005, Lower Silesia has recorded the highest economic growth rate, of approximately 10 % per annum, among the Polish regions (UMWD, 2014a).

Lower Silesia is one of the most industrialised areas of Poland, with a high level of degraded land, caused, in part, by the extensive mining of copper, silver and lignite, and former military areas (GUS, 2013).

Wrocław and its suburban zone provide typical examples of land-use transformations that can be observed in and around many cities in central Europe. After the Second World War, the spatial development of cities in Poland, and other countries of the communist block, followed central planning regimes. Suburbanisation was practically non-existent in this part of Europe at that time. Large districts consisting of blocks of flats formed a typical dwelling landscape, since the communist system did not support individual housing. Since the early 1990s, however, there has been migration from Wrocław to surrounding municipalities (Zathey, 2005).

2.2.3 Domestic drivers and stakeholders contributing to land-use changes

Several drivers have contributed to land-use changes, including the process of suburbanisation. Key economic factors have included:

- large areas of agricultural land and the low profitability of small-scale agricultural production;
- an economic transition and the increasing affluence, which has led to 'Western' consumption patterns, including a desire for more living space and single-family homes.

Several drivers are linked to the policy and institutional contexts:

- the better accessibility of suburban areas as a result of an improved transport network;
- municipal administrations seeking development to increase revenues;
- the lack of a cadastral tax that is proportionate to the market value of land, which might discourage land conversion;
- the lack of any obligation for municipalities to prepare local spatial management plans (see Box 2.2);
- the lack of effective instruments aimed at protecting the best agricultural soils from conversion to use for other purposes.

The key government stakeholders include:

- at the national level, ministries preparing sectoral strategies, and, in particular, the Ministry of Infrastructure and Development, which prepares, monitors and oversees strategies including those related to Cohesion Policy spending and those related to transport;
- the regional self-government institutions (voivodeship marshals), which prepare development strategies and spatial management plans ([47]), and prepare and implement OPs for Cohesion Policy spending;
- the municipal authorities, which oversee local land use, issue building consents and implement municipal investments, including those supported by Cohesion Policy funding.

Other key stakeholders include:

- investors that apply for building consents and implement projects;
- non-governmental organisations (NGOs); in Poland, there is a long tradition of environmental NGOs being involved in investment planning and criticising and, at times, blocking activities that might be damaging for the environment, including those that have potentially negative impacts on land and nature.

In the process of planning new investments, the local level is of special importance since this is the level at which the undertakings are actually implemented. The investors and private land owners that intend to build houses must apply for building consents, which, in most cases, can be issued by local authorities. A study of seven municipalities in the Mazowiecke region concluded that local authorities generally lack a well-defined spatial policy grounded on demographic forecasts and sustainability considerations. Environmental protection, as well as protection of the most fertile agricultural soils, appear less important for these local authorities than investments in infrastructure and the development of residential areas, which generate more revenue (Fogel, 2012).

([47]) Regional spatial management plans are not established as legal acts but, according to the Act on Spatial Planning, their provisions have to be taken into account during the preparation of municipal spatial management plans and studies on building conditions.

Box 2.2 Spatial planning (and its absence)

Municipalities in Poland are not required to prepare spatial plans, although they must prepare municipal studies on the conditions and directions of spatial management (*Studium uwarunkowań i kierunków zagospodarowania przestrzennego*), which, in turn, can shape land-use decisions. According to the Act on Spatial Planning and Management ([48]), such studies should take into account the principles set out in the National Spatial Management Plan, as well as regional development strategies, regional spatial management plans and, if any exist, municipal development strategies.

These municipal studies provide a framework for the preparation of local spatial management plans (*Miejscowy plan zagospodarowania przestrzennego*), but these are not obligatory and only approximately 30 % of the municipalities in Poland have so far adopted such plans (Śleszyński, 2013). As a result, individual building consents provide the main vehicle that shapes land-use decisions. For residential development on greenfield locations, just three conditions must be fulfilled: (1) at least one adjacent plot has to have housing on it; (2) the land must be accessible by public road; and (3) the existing infrastructure (e.g. water and electricity) must be sufficient for the planned construction.

Spatial management law has been criticised as giving priority to the protection of ownership rather than balancing private and public interests. Moreover, the lack of local spatial plans makes the process prone to corruption (Nowakowski, 2006). Other reasons that explain why local authorities avoid preparing local spatial plans include:

- the risk of having to compensate land owners for areas that are designated for public purposes;
- the time and expense required for such preparation;
- the risk that provisions could quickly become obsolete as a result of the fast pace of development.

A related problem is that the monitoring of changes in spatial management on a local level, practically, does not exist in Poland.

2.3 Policy objectives and instruments

This section presents an overview of the policy instruments (strategies and environmental assessments) that are relevant to land use and land degradation. Special attention is given to the planning of Cohesion Policy spending. The analysis also considers objectives related to land take and land degradation in Poland at different administrative levels and then follows the process of their implementation.

2.3.1 Development strategy

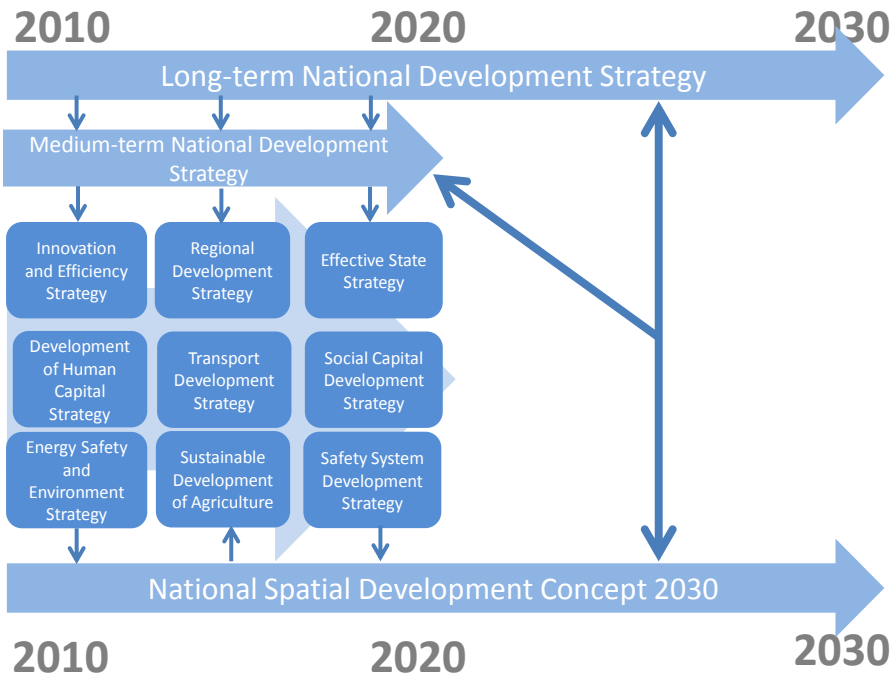
Polish development policy is implemented at three different levels: national (Council of Ministers), regional (marshals of voivodeships) and local (provincial and municipal authorities) ([49]). The policy is

([48]) OJ No 80, item 717, of 2003, with later amendments.

([49]) Act of 6 December 2006 on rules of implementation of the development policy and the decision of the Council of Ministers of 24 November 2009 on development strategy of the country (OJ No 84, item 712; OJ No 157, item 1241, of 2009; and OJ No 279, item 1644).

coordinated by the Minister of Infrastructure and Development (i.e. the minister that is competent for regional development and transport) ([50]). The Polish development strategy at state level is organised within a framework of several documents, intended as a coherent system consistent with both Polish development priorities and EU guidelines (see Figure 2.5).

Figure 2.5 State-level strategic documents that refer to development policy in Poland



Source: MIiR (2013a).

Two policy documents, the long-term *National development strategy (2030 perspective)* and the *National spatial management concept 2030* (MIiR, 2011), provide the leading elements of the framework. The medium-term *National development strategy 2020* (MIiR, 2012) encompasses the period until 2020, as does the EU-level Europe 2020 Strategy, and can be correlated with nine integrated sectoral strategies for this time period. These include strategies on transport and regional development.

Table 2.1 below contains a summary of the selected strategic documents that are relevant to land take and land degradation. The table comprises a short description of their provisions related to land use.

([50]) Currently, this is the Ministry of Infrastructure and Development (Ministerstwo Infrastruktury i Rozwoju (MIiR)), which was created in November 2013 after merging the Ministry of Transport, Construction and Maritime Management with the Ministry of Regional Development.

Table 2.1 Summary of the aspects of selected national-level Polish policy documents that are related to land use and land degradation

Policy document	Key overall goals	Key objectives related to land
National spatial management concept 2030 (MIiR, 2011)	Efficient use of national territory for development goals, including social, economic and territorial cohesion	Preference of renewal and regeneration over acquiring new land for investments Ecological compensation
Transport development strategy untill 2020 (with perspective till 2030) ([51]) (MIiR, 2013a)	Increasing territorial accessibility and improving the safety and the effectiveness of transport sectors through the creation of a coherent, sustainable and user-friendly transport system in the national, European and global dimension	Promotes sustainable development, rational use of natural resources and spatial balance
National strategy of regional development 2010–2020 (MIiR, 2010)	Competitiveness of regions Territorial coherence, counteracting marginalisation of problem areas	Optimisation of the use of territory Protection of functioning of ecosystems Biodiversity protection Avoiding indirect negative impacts of the use of resources Housing and urbanisation processes should not lead to an imbalance between biologically active and built-up areas
Strategy of sustainable development of rural areas, agriculture and fishery (MRiRW, 2012b)	Key directions for the development of rural areas, agriculture and fishery for 2012–2020, indicating priorities for financing from both national and Community sources	The strategy stresses the need of rational use of soils and warns that lack of coordination on the conversion of agricultural areas can harm landscapes and nature

The *National spatial development concept 2030* (MIiR, 2011) was devised to allow the coordination of sectoral programmes in terms of spatial cohesion and the development of a strategic vision for the spatial development of Poland. It provides a basis for action with regard to reforming spatial planning, including a proposed amendment to the Act on Spatial Planning and Development, with the aim of reducing sprawl, supporting the implementation of the Inspire Directive and increasing public participation in planning procedures. In addition, a National Urban Policy and National Plan for Regeneration are being prepared ([52]).

The Transport Development Strategy (MIiR, 2013a) provides a strategic framework for investments, and fulfils, together with its implementation document, the *ex ante* conditionality for transport under EU Cohesion Policy. Moreover, the Strategy outlines the role of trans-European transport network (TEN-T) projects in Poland. In addition to its overall goal, increasing territorial accessibility and improving the safety and the effectiveness of transport sectors through the creation of a coherent, sustainable and user-friendly transport system in the national, European and global dimension, the Strategy contains five detailed objectives, including the mitigation of the negative impacts of transport on the environment. The Strategy also calls for spatial balance and, if necessary, activities to

([51]) Hereafter referred to as the Transport Development Strategy.

([52]) Information based on MIiR (2011) and direct communication with the Ministry of Infrastructure and Development.

compensate for any damage to Natura 2000 areas. It also calls for a reduction in pressures via an improved approach to acquiring land for transport infrastructure, and the management and use of soil.

2.3.2 Strategic documents guiding Cohesion Policy spending

Cohesion Policy spending follows general strategic priorities established, first of all, at the national level (in the current financial perspective these are defined by so-called partnership agreements). These priorities follow both the principal objectives enshrined in EU policy (primarily the Europe 2020 strategy for the current financial perspective) and the general lines of the development strategy of the country. Subsequently, more detail can be added within OPs, which can be devised on both national and regional levels.

Table 2.2 Summary of the land use-related aspects of the policy documents that refer to EU Cohesion Policy for the period 2007–2013

Policy document	Key objectives related to land
2007–2013	
National Strategic Reference Framework (MIiR, 2007c)	No direct references to the use of land as a resource. Appendix 1 of this policy document highlights degraded areas and areas endangered by industrial degradation
Operational programme infrastructure and environment (OPI&E) (MIiR, 2007b)	The introductory part of the OP provides a diagnosis of the environmental status, including information on the state of the land and soil. The priority axis related to waste management and the protection of soil includes initiatives aimed at land rehabilitation
2014–2020	
Partnership Agreement (MIiR, 2014c)	The diagnosis of the current situation refers to urban sprawl and the lack of cohesion of newly developed areas. The Agreement highlights the promotion of ecosystem services, through, for example, Natura 2000 and green infrastructure. Preventing soil sealing is mentioned among the planned activities. For the development of small and medium-sized enterprises, preference should be given to projects in degraded land and in the vicinity of transport investments. Among horizontal principles, the Agreement describes spatial policy principles. Particular emphasis will be given to the following: • preventing urban sprawl and counteracting spatial chaos; • preference for land re-use and increasing development density instead of expansion to undeveloped areas (priority of brownfield over greenfield development); • care for the aesthetics of developments and adapting them to the surroundings, with respect for the natural, cultural and social context; • ensuring wide participation in spatial planning and investment preparation processes
Operational programme infrastructure and environment (MIiR, 2014d)	Investment priority 6.4 includes protection of biodiversity, soil protection and supporting green infrastructure. Investment priority 6.5 includes reclamation and decontamination of industrial areas (and former military areas)

A review of these documents (see Table 2.2) reveals that they do not focus particularly on the issues of land use and land degradation. These topics are typically mentioned only among issues related to environmental protection, which can be discussed in both the introductory diagnostic sections and the

objective-related sections. It should be noted that the *Operational programme infrastructure and environment* (MIiR, 2007b) for the years 2007–2013, which provides the basis for the largest Cohesion Policy investments, contains quite a well-developed description of problems related to land degradation and the importance of land reclamation. The corresponding programme (MIiR, 2014d) for the new financial perspective (2014–2020) treats this subject in a much more superficial way; however, support for land reclamation and the environmental restoration of degraded areas is envisaged in both programmes.

2.3.3 Strategic documents at the regional level: Lower Silesia

The main goal of the *Development strategy of Lower Silesia 2020* (UMWD, 2014c) is to ensure a high quality of life for the citizens of Lower Silesia in an attractive environment. More detailed goals include sustainable transport, environmental protection, increasing social inclusion and a better level of education.

In order to achieve specific goals, the strategy will be organised into eight sectors referred to as 'macrospheres'. Two of these sectors, 'Development of urban and rural areas' and 'Resources', refer directly to land use and land protection. The macrosphere related to the development of urban and rural areas envisages, among other things, the implementation of regional urban policy in order to counteract the urban degradation of cities and to limit urban sprawl, and to revitalise degraded urban and rural areas; the preparation of guidelines for the efficient management of space; and a strategy for the development and management of urban areas, as well as the protection of high-quality soils.

The most important strategic documents with relevance to land use and land degradation at the regional level include regional OPs and voivodeship spatial development plans ([53]). While spatial development plans can be seen as the most important policy documents for the development and land-use policies of the country, OPs provide a framework for the spending of EU funds (ERDF and Structural Funds (SF)) by each voivodeship. A related type of document is a voivodeship contract, which sets the rules for co-financing the regional OPs from the state budget, as well as from other Polish and foreign financing sources. A voivodeship contract is agreed and signed by the voivodeship authorities and the ministry that deals with regional development.

OPs are prepared with reference to the strategic documents at EU and state level, the development strategy for each region and regional spatial management plans. A review of the regional OPs for Lower Silesia (see Table 2.3) leads to a similar conclusion as the review of national-level documents: land use and land degradation issues are not treated as priorities, but soil protection appears to be one of the elements of the more broadly discussed category of environmental protection. In addition, the regional OP for 2014–2020 states that preference will be given to brownfield rather than greenfield development, and green infrastructure and investments in public transport will have priority over investments in other modes of transport.

([53]) Strategy for regional development prepared by the regional administration (Marshal's office) is another related document, providing a basis for preparation of regional operational programmes. This document provides links between the spatial policy of the regional self-government (spatial plan) and the socio-economic policy of the region.

Table 2.3 Summary of the main goals and land use-related aspects of the OPs for Lower Silesia

Policy document	Key objectives related to land
Regional operational programme for Lower Silesia 2007–2013 (UMWD, 2014a)	The diagnosis pinpoints devastated and degraded land, which is primarily related to mining, industrial activities and military areas. Priority 9 addresses the revitalisation of degraded urban areas
Regional operational programme for Lower Silesia 2014–2020 (UMWD, 2014b)	The diagnosis refers to the revitalisation of degraded areas, funding for green infrastructure and public transport

2.3.4 Environmental assessments

For projects co-financed from national or regional OPs, the Ministry of Infrastructure and Development has issued guidelines on EIAs (MIiR, 2009) to ensure consistent procedures for the implementation of the OPs and verification of the procedures used to assess projects applying for co-financing from EU funds. The impacts on soil surface and landscape are included among the elements which should be covered within the scope of the EIA.

All of the strategic documents cited above (except for the long-term development strategy) have been submitted for SEA; Box 2.3 presents the key findings from the SEA reports for the *National spatial development concept 2030* (MIiR, 2011) and the *Transport development strategy till 2020 (with perspective till 2030)* (MIiR, 2013a).

Box 2.3 Main findings related to land use for the two selected Polish strategies

***SEA for the National spatial development concept 2030* (MIiR, 2011)**

The negative impacts include:

- the expansion of traditionally urban activities and functions, such as culture and education, to the suburbs, which may result in further urban sprawl;
- land take as a result of the construction of new transport infrastructure;
- the increase in the attractiveness of greenfield locations because of an improvement in transport infrastructure.

The positive impacts include:

- the reclamation of degraded areas will result in the recovery of the biological functions of soil;
- a strengthening of landscape conservation and the introduction of land management practices better aligned with ecological conditions, which will contribute to a lowering of the anthropogenic pressure on land;
- a strengthening of the spatial planning system, which will integrate socio-economic considerations with local environmental conditions, and measures to limit urban sprawl; these factors will contribute to more sustainable land management.

***SEA for the Transport Development Strategy* (MIiR, 2013a)**

The SEA report lists several impacts on land that are likely to result from the implementation of the Transport Development Strategy. Among these are the stimulation of urbanisation and ongoing conversion of agricultural and forestry land in urban areas, the risk of soil pollution and an increase in the area of land used for the excavation of building materials for road construction. As a result, there will be changes in the landscape, a more intensive use of land in the vicinity of transport infrastructure and ecosystem fragmentation.

Positive impacts can be envisaged in degraded areas and areas with chaotic spatial structures. New or improved transport infrastructure may stimulate revitalisation of these areas, create better order around new roads and increase the aesthetic value of landscape.

Source: INE and Atkins (2010); CDM Sp. z.o.o. (2011).

EIA and SEA procedures often provide a good basis for assessment of environmental impacts of investments; however, the quality of the reports and procedures varies from one assessment to another. Moreover, some observers suggest that these assessments are, at least in some cases, treated as a formal requirement rather than as an actual instrument of practical importance. Another factor that has affected the value of assessments is a streamlining process for some larger investments, including road construction, called *specustawa* (see Box 2.4).

Box 2.4 Special legislation — *specustawa* — for investments in public roads

The procedure for obtaining consent for road investment is based on so-called *specustawa*, defined under a 2003 legal act, the aim of which is to simplify and speed up road investments. *Specustawa* has priority over local spatial management plans. According to this legal act, the General Directorate for National Roads and Highways (GDDKiA) can apply to regional and provincial authorities for consents with regard to the construction of the vast majority of roads, including highways and motorways; related procedures, including EIAs, are significantly shortened. Similar provisions were adopted with regard to investments in railways, airports, flood protection and infrastructure for the UEFA Euro 2012 football championships.

Source: Szafranko (2010).

Environmental NGOs, by questioning the potential environmental impact of infrastructure projects, help to make EIAs and SEAs more effective. The case of the Rospuda Valley and the Via Baltica provides a good example of the role of NGOs and the broader public in making EIAs more meaningful and effective with regard to the protection of valuable natural areas (see Box 2.5).

Box 2.5 Via Baltica and the Rospuda Valley

The construction of the Via Baltica motorway, as part of the TEN-T connecting Warsaw with Helsinki, had been planned in north-eastern Poland since the 1990s. In 2006, one of the road segments, the Augustów bypass, was planned to cut through natural areas of the Rospuda Valley, including a wild moorland recognised as a Natura 2000 site.

Public protests led to revisions of the EIA report, as it contained no real comparison of alternatives, and poor consideration of environmental impacts and risks. In December 2006, the European Commission opened an infringement procedure concerning the project's potential damage to protected areas. Despite this, local authorities allowed construction to start in February 2007.

In 2008, when the public conflict escalated, the national government took the decision to conduct another EIA procedure connected with the SEA for the whole Via Baltica project. A new EIA report analysed various alternatives, and a new public consultation procedure was held. In 2009, the plan to build the motorway through the Rospuda Valley was abandoned, and the road has been rerouted to avoid the wilderness area, a choice that was less expensive than the initial project. The bypass has now been completed.

Source: Sas-Bojarska (2010).

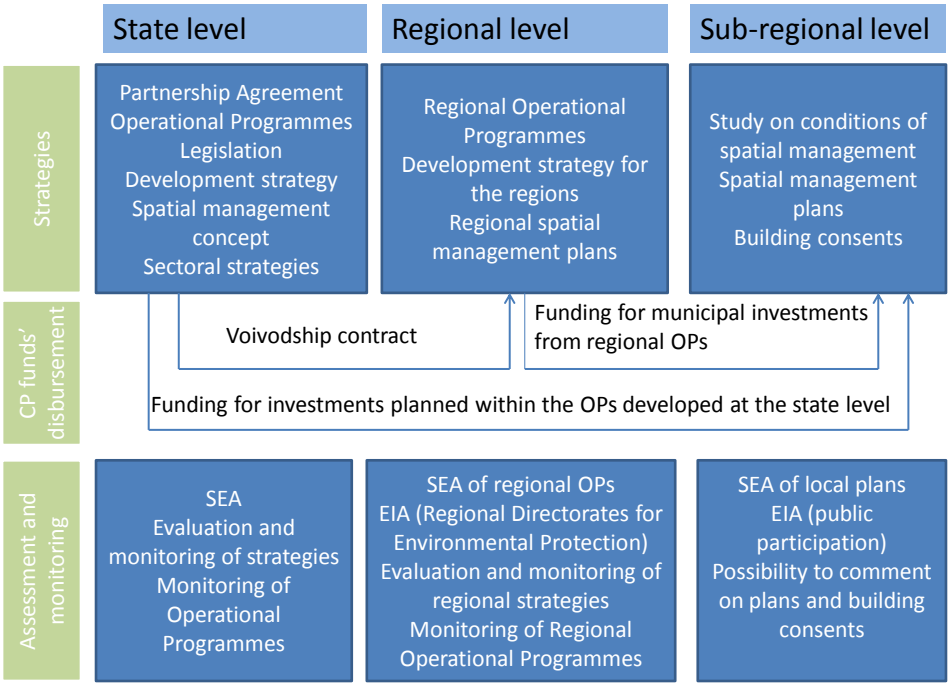
2.3.5 Cohesion Policy implementation process

The process of Cohesion Policy implementation in Poland can be followed from the state level, at which all the principal national strategies are created, to the local level, at which most of the planned

investments are implemented. Cohesion Policy fund disbursement channels differ depending on whether an investment is planned within one of the OPs prepared at the state level (e.g. the OPI&E) or within one of the regional OPs. All of the principal strategic documents, including local spatial development plans, are submitted for *ex ante* assessment (SEA). Monitoring and evaluation is well organised for the OPs, since the Member States are required, by the European Commission, to report progress in accordance with a specific format and using concrete indicators. Other strategic documents at the state and regional levels also undergo monitoring and evaluation; however, these seem to be less rigorously organised and followed. Investments that could be potentially damaging to the environment are assessed using EIA procedures (with the Regional Directorate of Environmental Protection taking the coordinating role in most cases). EIA allows the participation of all stakeholders during a public consultation procedure.

The general structure of policy implementation, evaluation and monitoring, including fund disbursement, is depicted in Figure 2.6.

Figure 2.6 Implementation, evaluation and monitoring scheme related to Cohesion Policy in Poland



Source: EEA/Milieu Ltd.

It is worth noting that while the creation of the strategies, and their assessment and evaluation at the state and regional levels are well defined and seem to be followed quite rigorously, especially with respect to the OPs, the situation at sub-regional level ([54]) is much more loosely defined. There is a sort of disconnection between quite an extensive body of strategic guidelines created at higher administrative levels and their application at local level. One of the factors contributing to this situation is the wide possibility to allocate land for new construction on the basis of zoning decisions rather than local spatial plans. Moreover, there is no clear mechanism for supervision by higher

([54]) Sub-regional level means mostly local level (municipalities). Another sub-regional level in Poland is a provincial (*poviat*) level, for which competencies are, however, very limited.

administrative levels over the decisions made with regard to the placement of new investments in municipalities. The funding available within the regional OPs, and the possibility of accepting or rejecting the applications of local authorities for co-funding of specific investments using the Cohesion Policy funds available within the regional programmes, provides a temporary instrument, but will not solve the problem in the long term.

The evaluation and monitoring processes of local spatial management practices are quite limited. There is a requirement to conduct SEAs for local plans and the possibility of participation by the local community in EIA procedures, as well as the possibility to comment on individual building consents and plans; however, the practical significance of these measures is, typically, not very high.

2.4 Policy implementation process

Since 2007, Poland has been the largest recipient of EU Cohesion funds. The following sections provide a short overview of the implementation of Cohesion Policy in three financial perspectives: 2004–2006 ([55]), 2007–2013 and 2014–2020 ([56]). Special attention is devoted to transport investments.

2.4.1 Overall spending levels

During the first 2 years of Poland's EU membership (2004–2006), the implementation of Cohesion Policy in Poland involved costs of approximately EUR 20 billion, with approximately 70 % of these costs being met by EU funds. In the 2007–2013 financial perspective, the total amount of funds devoted to Cohesion Policy was approximately EUR 85 billion, which was 80 % of the EU funds (MSZ, 2014).

Table 2.4 presents a summary of the total financial outlays from the EU for Cohesion Policy-related investments, both total investments and those related to transport infrastructure. Annual averages are presented for comparison, as the first cycle ran for only 3 years. (While total spending levels are readily available, those for transport in the 2007–2013 period are a rough estimate based on available information.)

Table 2.4 Cohesion Policy spending in Poland: cycles from 2004 to 2020 (in billion EUR)

	2004–2006		**2007–2013**		**2014–2020**	
	Total	**Annual average**	**Total**	**Annual average**	**Total**	**Annual average**
All spending	14	4.7	67.5	9.6	77.6	11.1
Transport	5.4	1.8	23.3	3.3	n/a	n/a

Notes: Annual averages are calculated based on the years indicated for each cycle; under EU rules, actual spending can be undertaken in a longer period. The data refer to EU outlays; national co-financing was approximately 40 % for the 2004–2006 cycle and 20 % for subsequent cycles. n/a, not applicable.

Source: MSZ (2014).

([55]) This spending period started in 2000, but since Poland joined the EU in 2004, only the 2004–2006 period was considered.

([56]) The description of this financial perspective relates to only the initial allocation.

Overall, Cohesion Policy spending has been significant; annual averages have increased in each subsequent financial cycle. The allocation for the new financial perspective (EUR 77.6 billion for the 2014–2020 period) exceeds the allocation for the previous financing period. However, it is expected that the new financial perspective will be the final period with such high allocations of Cohesion Policy instruments for Poland.

Cohesion Policy provides the bulk of financing for transport infrastructure. According to Korolewska (2012), the proportion of funding for overall outlays for road transport investments in the country from EU sources has increased in recent years, from approximately 50 % in 2009 to almost 80 % in 2011.

Financial allocations for priorities III and IV in the new OPI&E, which are related to transport ([57]), amount to EUR 19.8 billion, which is slightly lower than the allocation for the previous financial perspective (MIiR, 2014d).

2.4.2 Cohesion Policy spending in Lower Silesia

Cohesion Policy investments in Lower Silesia have been primarily planned as part of its regional OPs. Table 2.5 presents a summary of Cohesion Policy spending during the financial perspectives 2004–2006 and 2007–2013, overall and for the transport sector specifically.

Table 2.5 Cohesion Policy spending in Lower Silesia: cycles from 2004 to 2020 (in million EUR)

	2004–2006		**2007–2013**		**2014–2020**	
	Total	**Annual average**	**Total**	**Annual average**	**Total**	**Annual average**
All spending	223.6	74.53	1 240.18	177.2	2 251.4	321.6
Transport	n/a	n/a	273.2	39.0	376.5	53.8

Notes: Annual averages are calculated based on the years indicated for each cycle; under EU rules, actual spending can be undertaken in a longer period. n/a, not applicable.

Source: ZPORR (2004); UMWD (2014a).

The overall funding for the regional OPs in the financial perspective 2014–2020 will be significantly higher than it was for the previous financial perspective; this reflects the general policy line of the Polish government, namely to gradually transfer more governance power from the state level to the regional administration level. This is also reflected in the financial allocation for the regional OP for Lower Silesia, which more or less doubled compared with the previous period.

2.4.3 Cohesion Policy investments and achievements in the transport sector

The total Community contribution to investments in safe and clean transport infrastructure in the period 2004–2013 amounted to almost EUR 29 billion; EUR 5.4 billion was available in the years 2004–2006 and EUR 23.3 billion was available in the period 2007–2013. The outcomes achieved since 2004 include the construction of 673 km of highways, and the construction or modernisation of 808 km of motorways. This means that, since 2003, there has been an increase in the length of highways and motorways of 165 % and 357 %, respectively. Investments on a similar scale are

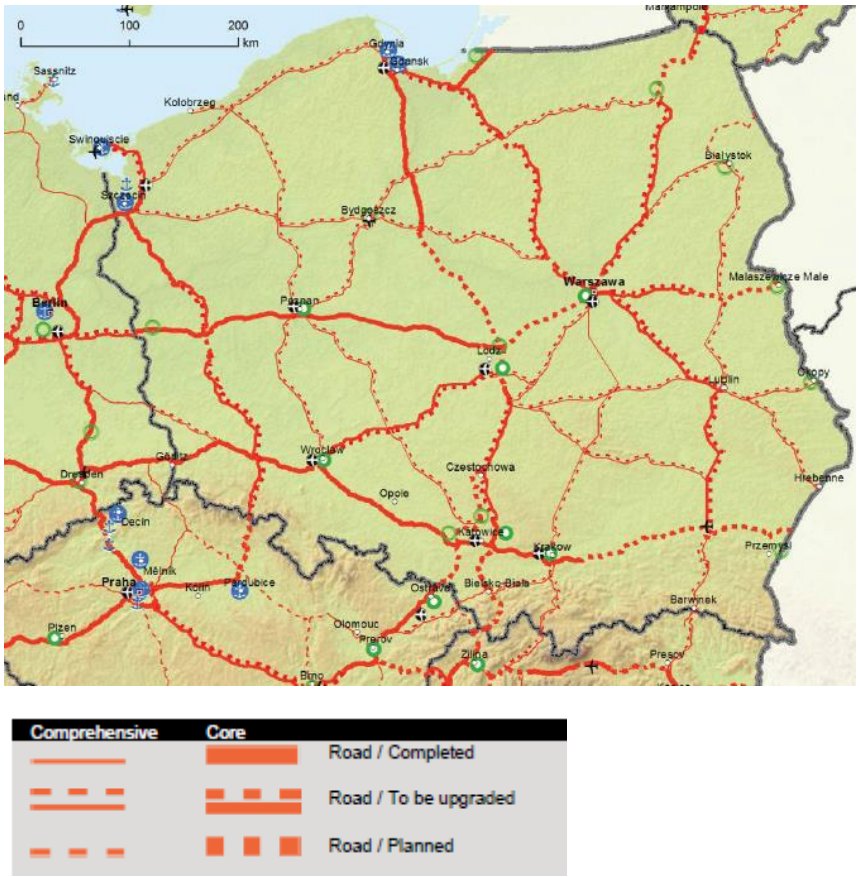
([57]) Priority III focuses on the development of an environmentally friendly transport infrastructure and is planned to absorb approximately EUR 16.8 billion of the total allocation, while priority IV focuses on improving connectivity with the European transport network and is planned to absorb the remaining EUR 3 billion.

planned for the next financial perspective, 2014–2020 (MSZ, 2014). Figure 2.7 depicts the TEN-T in Poland. The total length of the planned TEN-T in Poland amounts to approximately 7 400 km, comprising 3 890 km of core network and 3 460 km of comprehensive network (MIiR, 2013a). The majority of transport investment in Poland follows TEN-T planning.

2.5 Evidence of impacts on land

While impacts of EU policies on land take and land degradation cannot easily be traced, given the multitude of factors influencing land use, some direct and indirect effects can be identified. Two examples related to Cohesion Policy in Poland are briefly described below, namely land take related to transport investments and suburbanisation around Polish cities.

Figure 2.7 TEN-T in Poland



Source: European Commission ([58]).

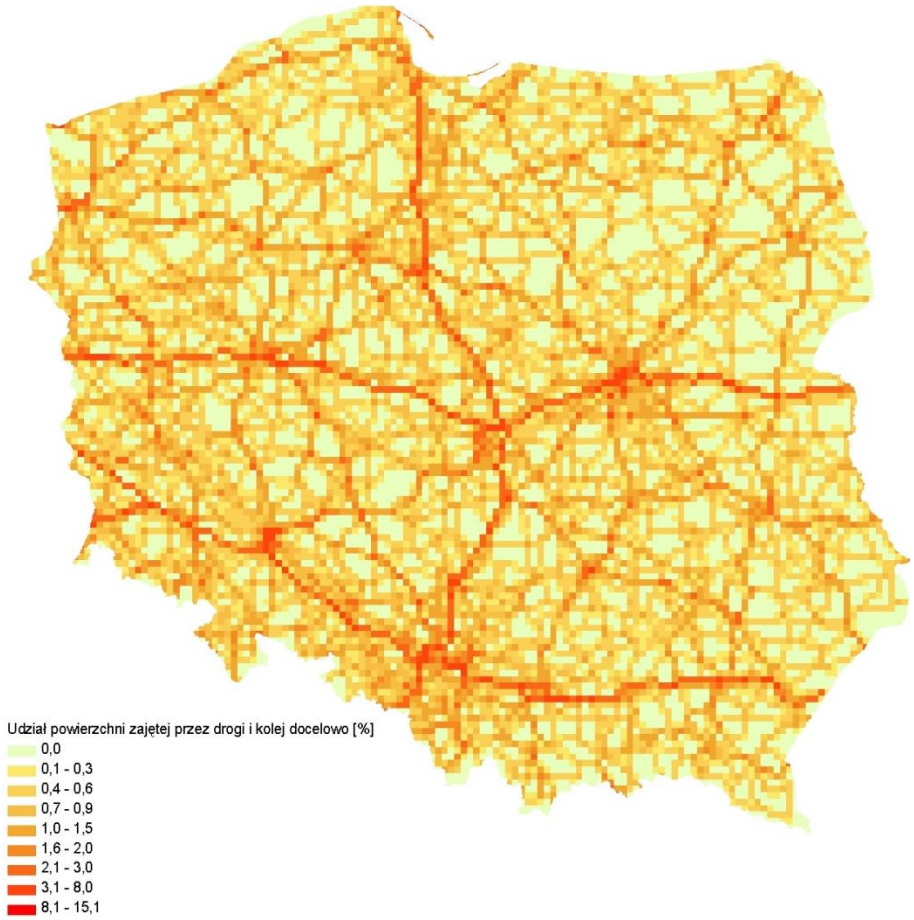
2.5.1 Impact of transport

According to the SEA report accompanying the Transport Development Strategy (CDM, 2011), the area of land taken, directly as a result of the construction or modernisation of roads and railways in Poland, between the base year 2010 and 2020, is estimated to amount to approximately 1 800 ha. Changes in the designation of agricultural and forestry areas (i.e. indirect impacts on land) are expected to affect approximately 36 000 ha. Figure 2.8 shows the forecasted spatial pressure resulting

([58]) Available online (http://ec.europa.eu/transport/themes/infrastructure/ten-t-guidelines/doc/maps/cz-hu-pl-sk.pdf), accessed 11 December 2014.

from transport infrastructure development per km^2 of land. The colours on the map indicate the percentage of land taken by transport infrastructure per 25-km^2 squares. The main areas of land take are expected to be along major transport routes, including those designated for TEN-T, as well as around large cities.

Figure 2.8 Forecast of spatial pressure of transport infrastructure in Poland in 2020



Source: CDM (2011).

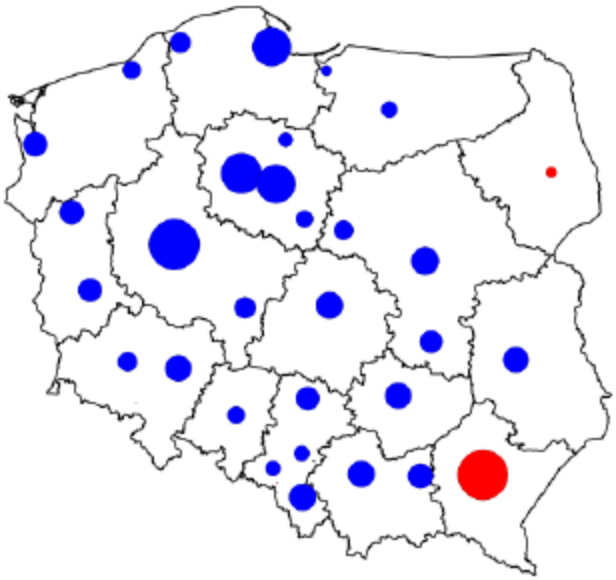
A study on the impact of the construction of highways and motorways on the socio-economic and territorial development of Poland (MIiR, 2013b) analyses, among other factors, the impact of the construction of highways and motorways on land use. One of the conclusions of this evaluation, made on the basis of statistical analysis, is that, in general, the areas with transport investments that are co-financed by EU assistance funds are characterised by a better coverage of spatial development plans than the areas without such investments. Another observation is that changes in the degree of urbanisation appear to be related to transport investments. According to the evaluation, the number of apartments built in 2010 was almost 70 % higher in the Polish municipalities that, in the 2004–2012 period, implemented road investments co-financed by EU assistance funds than in the municipalities which did not implement such investments. The highest number of apartments (53 per 1 000 inhabitants) was observed in suburban areas (as compared with 46 apartments per 1 000 inhabitants, on average, in the municipalities that implemented road investments supported by EU funds). This suggests that investments in roads and, specifically, the investments supported by EU Cohesion Policy, induce, to some extent, urbanisation processes and, specifically, urban sprawl around these roads.

2.5.2 Impact of Cohesion Policy on the development of Polish cities

Suburbanisation, defined as migration of the population from the central cities to the suburban zones, is an inevitable process resulting from the social and economic development of Polish cities, particularly with regard to the largest metropolitan and regional centres. A study performed at a research institute of Warsaw University (Euroreg, 2010) investigated the impact of Cohesion Policy on the development of Polish cities and their relationship with regional surroundings. The survey covered all Polish cities with populations exceeding 90 000.

From this research, it is evident that in the 2004–2008 period, nearly all large Polish cities, with the exceptions of Rzeszów and Białystok in eastern Poland, underwent significant suburbanisation processes. The most intensive migrations of populations to the suburban zones were observed in Poznań, Tricity (the conurbation of Gdańsk, Gdynia and Sopot), Bydgoszcz and Toruń. Figure 2.9 shows how changes in the proportions of the population living in the large cities and the surrounding metropolitan area have changed.

Figure 2.9 Suburbanisation of large Polish cities, 2004–2008



Note: Blue dots indicate outflow to suburban areas; red dots indicate inflow to cities. The largest blue dots indicate areas in which there has been a 2.9 % or higher outflow of the urban population to the suburban area, medium-sized dots indicate a 1.45 %–2.9 % outflow and the smallest dots represent an outflow of 0.29 %–1.45 %. Red dots indicate the reverse phenomenon (i.e. the concentration of the population in city centres).

Source: Euroreg (2010).

The financial assistance granted within Cohesion Policy programmes provided the possibilities to realise a significant number of infrastructure investments; it should be noted that investment outlays for projects under Cohesion Policy dominated the capital expenditures of the surveyed cities. This is clearly shown by the fact that PLN 31.5 billion was spent on Cohesion Policy-supported investments and PLN 35.7 billion of investment outlays were made overall by self-governments of the surveyed cities in the years 2004–2008. Cohesion Policy interventions were devoted primarily to environmental protection infrastructure (over 40 % of the total value of these interventions) and transport infrastructure (over 25 % of the total).

The projects undertaken in the suburban zones concentrated, most of all, on fulfilling the current needs of their inhabitants (e.g. sewage treatment, transport and waste management). These projects improved the living quality and conditions for suburban zone inhabitants, contributed to a decline in the impacts on the local natural environment and also improved the attractiveness of housing in the municipalities which implemented them. The study found that, in the majority of cases, actions taken by individual municipal authorities were not coordinated at a higher level, they did not become, for example, a part of the spatial policy of metropolitan areas, since such a policy virtually does not exist in the Polish context. The individual projects, in most cases, did not consider possible future trends, or social and economic processes (e.g. an increase in the number of children in suburban communities). The projects could only temporarily improve living conditions, and make up for many years of deficits in terms of investment, and failed to comprehensively solve the problems arising as a result of suburbanisation ([59]). In case of social infrastructure, these investments may increase the attractiveness of a community as a whole and, therefore, contribute to an increase in suburbanisation.

The Warsaw University study notes that the changes in the distribution of populations resulted most of all from the preferences of individuals and local decision-makers, which could, to some degree, have been modified by actions taken under Cohesion Policy. The investments that have been co-financed by Cohesion funds have typically been used to address the needs of municipalities, arising because of their spontaneous and sometimes chaotic spatial development. This does not mean that the implemented projects had no influence on diffusion processes related to city development, but, at the same time, it is impossible to assess this possibility in a clear and unambiguous way.

In the new programming period, the functional approach to development is of growing importance, including for urban areas. This will involve a shift from addressing problems and challenges solely on the basis of administrative borders (such as those for cities) to addressing a city and the surrounding area that has functional ties to it; or the consideration of districts and their degraded neighbourhoods. A new Cohesion Policy instrument, namely Integrated Territorial Investment (ITI), is likely to play a key role in this shift. Poland has decided to make ITI mandatory for voivodeship capitals and the surrounding areas with functional ties. These instruments should thus support spatial policy at the metropolitan level.

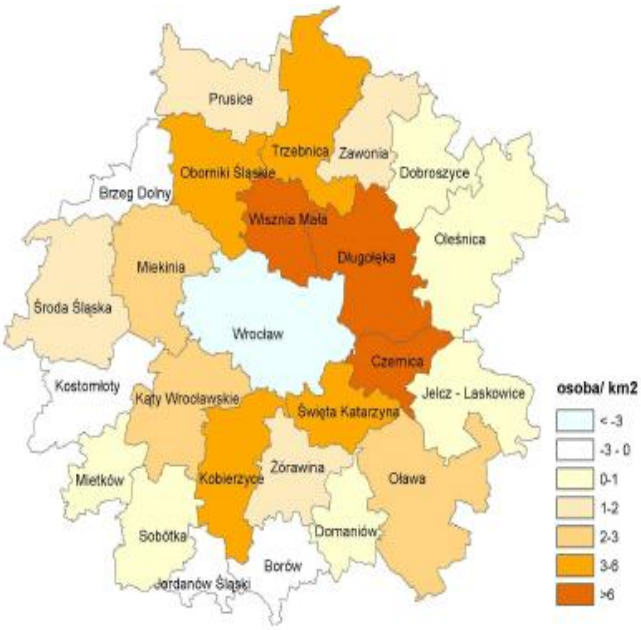
2.5.3 Wrocław suburban area

The suburbanisation trend was present for at least some Polish cities before the accession of Poland to the EU. For example, suburbanisation occurred in Wrocław prior to EU accession: the population decreased in the city itself, while it increased in the surrounding municipalities (see Figure 2.10).

This suburbanisation trend has continued, as infrastructure investments from EU Cohesion funds have been used to co-finance municipal infrastructure both within the city of Wrocław (e.g. urban transport investments) and in its surrounding area (e.g. roads and wastewater treatment plants). This trend is consistent with the observations related to the overall situation in Poland made in the previous section.

([59]) The observations made in the Euroreg (2010) study are consistent with the opinion of the Polish participants of the project workshop held in Brussels on 16 October 2014. According to the representative of the Polish regional authorities, Cohesion Policy funding available within the framework of the regional operational programmes was often used ‘to fix’ the problems of urban sprawl, which happened because of lack of appropriate spatial planning on a local level. Municipal authorities often applied to the regional Cohesion Policy fund disbursement schemes for funds to finance investments in basic infrastructure in order to be able to accommodate the needs of the growing populations of suburban areas.

Figure 2.10 Suburbanisation process around Wrocław in the years 1989–2000



Note: Different colours indicate changes in population density, from a decrease in three persons (–3) per km^2 (pale blue) to an increase in more than six persons (> 6) persons per km^2 (deep orange).

Source: Zathey (2005).

Cohesion Policy spending is not the only factor behind this process. Development proposals often fail to consider compact approaches and public transport. Figure 2.11 indicates an area proposed for a new residential settlement on agricultural land between two small existing settlements in the vicinity of Wrocław; both settlements have railway stations, while the new development would not. A risk of these types of development is that the costs of the municipal infrastructure could be financed by Cohesion Policy funds, despite the goals aimed at addressing urban sprawl.

Figure 2.11 Risks of urban sprawl in the vicinity of Wrocław

Note: The white circle indicates the area proposed for a new residential settlement; the blue circles indicate two small existing settlements in the vicinity of Wrocław; the red line indicates the railway line.

Source: Zathey (2014).

The local drivers for sprawl are closely linked to those described in Section 2.2, including:

- the demand for housing outside cities, which is stimulated by improvements in economic conditions but also by social trends and fashions (e.g. an idealistic picture of a single-family house surrounded by nature);
- changes in legal conditions and rules, which contribute to facilitating the process of obtaining building consents and, therefore, the construction of single-family houses;
- revenue-driven policies of municipal authorities that want to attract new investments for tax revenue;
- the relatively low prices of land outside cities and the possibilities of obtaining long-term credit for financing construction.

2.6 Conclusions

Cohesion Policy in Poland has influenced land take and land degradation in many ways. Cohesion Policy-funded transport investments, particularly the construction of new roads, have resulted in soil sealing and contributed to suburbanisation and urban sprawl; it should be stressed, however, that such impacts are characteristic of all road construction activities, regardless of the source of funding. A positive impact of EU Cohesion Policy funding has been the more thorough planning, assessment and monitoring of projects supported by EU funds than there are for projects undertaken in accordance with national practice.

Table 2.6 summarises the assessment of the impact of EU Cohesion Policy on land use in terms of the evaluation criteria proposed in the methodological part (Chapter 2) of EEA Report No 8/2016.

Table 2.6 Assessment of the impact of EU Cohesion Policy in Poland in terms of the proposed evaluation criteria

Evaluation criteria	Assessment
Relevance	In absolute terms, land take has increased in Poland; however, the rate of land take in recent years has shown a decreasing trend and has remained below the European average. CAP instruments have helped to increase the economic viability of farming and have stimulated good agricultural practices, which to some extent have prevented the abandonment of agricultural land and contributed to limiting the negative impacts of agriculture on soils
Coherence	Key national policy documents refer to the protection of land, soil and landscape as being among environmental goals, and the National Spatial Development Concept and National Strategy of Regional Development in particular call for the better management of space and the preservation of the natural integrity of ecosystems. The national policy documents reviewed do not, however, contain direct references to the EU objectives on land as a resource. Moreover, these national policy documents present general guidelines and principles, but they are not legally binding The SEAs for key policy documents consider impacts on land For Cohesion Policy, OPs cite the need to protect land and soil, among other environmental goals. However, they do not refer to EU objectives on land
Effectiveness	Although land-use objectives are mentioned in state-level strategies, many development actions at local level appear to go in an opposite direction EU spending on transport appears to be linked both to direct impacts on land take and soil sealing and to indirect impacts, as it supports ongoing sprawl EU policies, including Cohesion Policy, have as yet not led to greater attention or limits to land take OPs at the regional level potentially provide, at least, an instrument for regional authorities to control, to some extent, chaotic spatial development on a local level SEA and EIA procedures including interventions of the NGOs and broader public, help to make this policy more effective with regard to environmental objectives, including land take and land degradation considerations. While EIAs and SEAs can address land issues, the 'streamlining' approach of the *specustawa* may hinder the effectiveness of these assessments
EU added value	While EU spending plays a significant role in many policy areas, domestic drivers for land take and soil sealing, and the national, regional and local contexts are quite important Cohesion Policy has led to more rigorous planning, monitoring and evaluation procedures for spending; however, it is not clear if these improvements affect land take Given the importance of EU funding for Poland, greater EU policy attention, including guidelines and requirements related to land, could play an important role in raising awareness and catalysing action

Several important factors exist at the national, regional and local levels of administration which hinder the uptake and implementation of EU and national goals related to land. One of the main observations coming from the study is that there is a sort of disconnection between the objectives stated at the national level and common practice at the local level. Legislation does not give sufficiently strong incentives for the stimulation of the sustainable use of land. Some policy instruments are in place (e.g. the Act on the Protection of Agricultural Soils), but they are not effective. Other possible instruments that could be used to regulate this area, for example cadastral tax or the obligatory creation of local spatial management plans, are lacking. In the absence of such mechanisms, the prevailing policy of local administration based on ad hoc building consents often wins over the long-term planning

approach. The lack of procedures for evaluating and monitoring land-use changes on a local level aggravates the situation.

In the absence of strong mechanisms, under the Polish law, related to planning, monitoring and supervision of land management at a local level, the funds available within the framework of regional OPs may provide at least a temporary instrument for the regional authorities to control spending that might contribute to negative impacts on land, such as urban sprawl. This opportunity is especially strong in the 2014–2020 financial perspective, during which the proportion of funding allocated at the regional level will be higher than it was for the previous financing period. In the longer term, however, more radical changes in legislation related to spatial planning and management are needed.

The adoption of the *National spatial development concept 2030* (MIiR, 2011), the preparation of a National Urban Policy and a National Plan for Regeneration, as well as the planned amendments to the Act on Spatial Planning and Development aimed at reducing chaotic suburbanisation, provide hope for positive changes to the Polish spatial management system. These changes are expected to limit, at least to some extent, the potential negative impacts on land of investments, including investments that result from the implementation of EU policies. However, it is equally important that educational and informational initiatives are aimed at creating awareness among land owners and managers that space is not a renewable resource and cannot be seen merely from the perspective of profit generation.

References

Bański, J., 2014a, unpublished material and consultations.

Bański, J., 2014b, 'Structure and ownership of agricultural land in Poland in the first years of new millennium', *Journal of Agricultural Science and Technology*, (B4 A14), 85–93.

Bermejo, D., Clavero, F., Y Moreira, J.M., (Coord.), 2011, *Medio siglo de cambios en la evolución de usos del suelo en Andalucía, 1956–2007*. Consejería de Medio Ambiente, Junta de Andalucía, Sevilla.

Bhatta, B., 2010, 'Causes and consequences of urban growth and sprawl', in: *Analysis of urban growth and sprawl from remote sensing data*, Springer-Verlag, Berlin, Heidelberg.

CDM Sp. z o.o., 2011, *Prognoza oddziaływania na środowisko dla projektu Strategii Rozwoju Transportu do 2020 roku (z perspektywą do 2030 roku)* [*Prognosis of the environmental impacts for the draft Transport Development Strategy till 2020 (with perspective till 2030)*] (http://www.mir.gov.pl/transport/zrownowazony_transport/srt/strony/start.aspx).

EC, 2007, *Cohesion policy 2007–13: Commentaries and official texts*, European Commission (http://ec.europa.eu/regional_policy/sources/docoffic/official/regulation/pdf/2007/publications/guide2007_en.pdf).

EC, 2009, *European Cohesion Policy in Poland*, European Commission (http://ec.europa.eu/regional_policy/sources/docgener/informat/country2009/pl_en.pdf).

EC, 2010, *La política de cohesión 2007–2013 y el medioambiente — Red de autoridades mediambientales, Madrid*, European Commission DG Regional Policy (http://www.magrama.gob.es/es/calidad-y-evaluacion-ambiental/temas/red-de-autoridades-ambientales-raa-/politica_de_cohesion_y_medio_ambiente_tcm7–15144.pdf).

EEA, 2011, *Survey of resource efficiency policies in EEA member and cooperating countries. Country profile: Poland*, European Environment Agency (http://www.eea.europa.eu/themes/economy/resource-efficiency/resource-efficiency-policies-country-profiles).

EEA, 2013, Land take, CSI014/LSI 001, European Environment Agency (http://www.eea.europa.eu/data-and-maps/indicators/land-take-2/assessment-2).

Europarc, 2012, *Anuario 2011 — del estado de las áreas protegidas en España*, Europarc-España (http://www.redeuroparc.org/img/publicaciones/Anuario2011.pdf).

Euroreg, 2010, *Ocena wpływu polityki spójności na rozwój miast polskich* [*Evaluation of impact of Cohesion Policy on development of Polish cities*], Warsaw, October 2010 (http://www.ewaluacja.gov.pl/Ewaluacja_ex_post_NPR/Documents/raport_koncowy_expost9.pdf).

Fogel, P., 2012, *Wskaźniki oceny polityki i gospodarki przestrzennej w gminach* [*Indicators of evaluation of spatial policy and spatial management on local community level*], PhD thesis, Polish Academy of Sciences, Warsaw.

Galacho, F. B., 2002, 'Los usos del suelo en el espacio costero de la provincia de Málaga basados en un modelo de desarrollo urbano-turístico con importantes consecuencias ambientales', *Baetica. Estudios de Arte, Geografía e Historia*, (24) 21–61.

Galacho, F. B., 2010, 'La irrupción del proceso urbano en los espacios rurales. Reflexiones acerca de las características de una nueva forma de relación entre territorio y economía', in: Delgado, C., Juaristi, J. and Tomé, S. (eds), *Ciudades y paisajes urbanos en el siglo XXI*, Ediciones de Librería Estudio, Santander, pp. 297–314.

Garrigós Simón, F. J. and Palacios Marqués, D., 2008, *El turismo residencial y las políticas públicas europeas*, Estudios de Progreso, Fundación Alternativas.

GUS (Main Statistical Office of Poland), 2013, data from Statistical Yearbooks 2000–2013 (http://stat.gov.pl/obszary-tematyczne/roczniki-statystyczne/roczniki-statystyczne/rocznik-statystyczny-rzeczypospolitej-polskiej-2013,2,8.html).

INE (Instytut na Rzecz Ekorozwoju) and Atkins, W. S., 2010, *Prognoza oddziaływania na Środowisko Projektu Koncepcji Przestrzennego Zagospodarowania Kraju 2030* [*Prognosis of environmental impact of the National Spatial Development Concept*], Warsaw.

Inforegio, 2014, 'Information on Cohesion Policy eligibility and allocations' (http://ec.europa.eu/regional_policy/what/future/eligibility/index_en.cfm).

Junta de Andalucía, 2013, *Datos básicos 2013 — Economía*, Instituto de Estadística y Cartografía de Andalucía, Sevilla.

Junta de Andalucía, 2014, *Medio Ambiente en Andalucía, Datos básicos 2014*, Consejería de Medio Ambiente y Ordenación del Territorio, Sevilla.

Korolewska, M., 2012, *Wydatki publiczne na infrastrukturę transportu lądowego w Polsce* [*Public spending on road transport in Poland*], Office for Parliamentary Studies BAS report No 4(32), pp. 79–124 (http://orka.sejm.gov.pl/WydBAS.nsf/0/1AFCEEEE3D9C234DC1257ADB003C3913/$file/Stony%20odStudia_BAS_32–6.pdf).

Kulikowski, R., 2012, 'Produktywność i towarowość rolnictwa w Polsce' ['Agricultural productivity in Poland'], *Barometr Regionalny*, (4) 17–29 (http://br.wszia.edu.pl/zeszyty/pdfs/br30_02kulikowski.pdf).

MIiR (Ministerstwo Infrastruktury i Rozwoju), 2007a, *National cohesion strategy (National Strategic Reference Framework 2007–2013)* (http://www.funduszeeuropejskie.gov.pl/WstepDoFunduszyEuropejskich/Documents/NSRO_an_20_07.pdf).

MIiR (Ministerstwo Infrastruktury i Rozwoju), 2007b, *Operational programme infrastructure and environment* (http://www.pois.gov.pl/English/Documents_POIS/Documents/7122008_POIiS_ENG.pdf).

MIiR (Ministerstwo Infrastruktury i Rozwoju), 2007c, *Operational programme infrastructure and environment, the National Strategic Reference Framework for the years 2007–2013* (http://www.pois.gov.pl/English/Documents_POIS/Documents/7122008_POIiS_ENG.pdf).

MIiR (Minister Infrastruktury i Rozwoju), 2009, *Narodowe Strategiczne Ramy Odniesienia 2007–2013, Wytyczne w zakresie postepowania w sprawie oceny oddzialywania na srodowisko dla przedsiewziec wspolfinansowanych z krajowych lub regionalnych programow operacyjnych* [*Guidelines regarding environmental impact assessment procedures for the undertakings co-financed from national or regional operational programmes*], 5 May 2009 (http://www.mir.gov.pl/fundusze/fundusze_europejskie/OOS/Documents/WYTYCZNE_OOS_050509.pdf).

MIiR (Ministerstwo Infrastruktury i Rozwoju), 2010, *Krajowa Strategia Rozwoju Regionalnego 2010–2020* [*National strategy of regional development 2010–2020*] (http://www.mir.gov.pl/rozwoj_regionalny/polityka_regionalna/ksrr_2010_2020/strony/default.aspx).

MIiR (Ministerstwo Infrastruktury i Rozwoju), 2011, *Koncepcja Przestrzennego Zagospodarowania Kraju 2030* [*National spatial management concept 2030*] (http://www.mir.gov.pl/rozwoj_regionalny/polityka_przestrzenna/kpzk/strony/koncepcja_przestrzennego_zagospodarowania_kraju.aspx).

MIiR (Ministerstwo Infrastruktury i Rozwoju), 2012, *Strategia Rozwoju Kraju 2020* [*National development strategy 2020*] (http://strateg.stat.gov.pl/strategie_pliki/Srednookresowa_Strategia_Rozwoju_Kraju.pdf).

MIiR (Ministerstwo Infrastruktury i Rozwoju), 2013a, *Strategia Rozwoju Transportu do 2020 roku (z perspektywą do 2030 roku)* [*Transport development strategy till 2020 (with perspective till 2030)*] (http://www.mir.gov.pl/Transport/Zrownowazony_transport/SRT/Documents/Strategia_Rozwoju_Transportu_do_2020_roku.pdf).

MIiR (Ministerstwo Infrastruktury i Rozwoju), 2013b, *Wplyw budowy autostrad in drog ekspresowych na rozwoj spoleczno-gospodarczy i terytorialny Polski* [*Impact of motorways and expressways on socio-economic and territorial development of Poland*] (http://www.ewaluacja.gov.pl/Wyniki/Documents/Raport_koncowy_z_badania_autostrady_i_drogi_ekspresowe.pdf).

MIiR (Ministerstwo Infrastruktury i Rozwoju), 2014a, *Dokument implementacyjny do Strategii Rozwoju Transport do 2020 roku (z perspektywą do 2030 roku)* [*Implementation document for transport development strategy till 2020 (with perspective till 2030)*] (http://www.mir.gov.pl/aktualnosci/Transport/Documents/DI_do_SRT_24_09_2014_RM.pdf).

MIiR (Ministerstwo Infrastruktury i Rozwoju), 2014b, *Ocena postepow Polski w zakresie spojnosci z Unia Europejska, Raport 2007* [*Evaluation of progress of Poland in reaching cohesion with the European Union, Report 2007*].

MIiR (Ministerstwo Infrastruktury i Rozwoju), 2014c, *Programming of the 2014–2020 financial perspective — Partnership agreement* (http://www.mir.gov.pl/fundusze/Fundusze_Europejskie_2014_2020/Programowanie_2014_2020/Umowa_partnerstwa/Documents/UP_ang.pdf).

MIiR (Ministerstwo Infrastruktury i Rozwoju), 2014d, *Program Operacyjny Infrastruktura i Środowisko* [*Operational programme infrastructure and environment*] (https://www.mir.gov.pl/fundusze/Fundusze_Europejskie_2014_2020/Documents/POIS_2014_2020_08012014.pdf).

Ministerio de Fomento, 2014, *Programa operativo de Andalucía* (https://www.fomento.gob.es/MFOM/LANG_CASTELLANO/_ESPECIALES/FITE/FEDER_07_13/ANDALUCIA/).

Ministerstwo Gospodarki, 2014, *Strategia bezpieczenstwa energetycznego i srodowiska* [*Strategy of energy safety and environment*], Ministry of Economy (http://bip.mg.gov.pl/files/upload/21165/SBEIS.pdf).

Moreira, J. M., 2011, 'Urbanismo expansivo: de la utopía a la realidad. Reflexiones desde la información ambiental', Ponencia presentada en el XXII Congreso de Geógrafos Españoles, Alicante, Octubre 2011, 31.

MRiRW (Ministerstwo Rolnictwa i Rozwoju Wsi), 2012a, *Strategia zrównowazonego rozwoju wsi, rolnictwa i rybactwa na lata 2012–2020* (http://www.minrol.gov.pl/Informacje-branzowe/Strategia-zrownowazonego-rozwoju-wsi-rolnictwa-i-rybactwa-na-lata-2012–2020/Dokumenty-analizy).

MRiRW (Ministerstwo Rolnictwa i Rozwoju Wsi), 2012b, *Strategia zrównowazonego rozwoju wsi, rolnictwa i rybactwa* [*Strategy of sustainable development of rural areas, agriculture and fishery*] (http://www.rpo-swietokrzyskie.pl/userfiles/Polityka%20rozwoju/SZRWRiR%20przyjeta%20przez%20RM%20przed%20podpisem%20Premiera.pdf).

MSZ (Ministerstwo Spraw Zagranicznych), 2014, *Polskie 10 lat w Unii* [*Polish 10 years in the EU*], Warsaw (http://www.msz.gov.pl/resource/82971f69-d890–4394-aff7–01899c796784:JCR).

Nowakowski M., 2006, 'Rozprzestrzenianie i rozpraszanie zabudowy warszawskiej metropolii' ['Urban sprawl of the Warsaw metropolis'], in: Kozlowski, S. (ed.), *Zywiolowe rozprzestrzenianie sie miast. Narastajacy problem aglomeracji miejskich w Polsce* [*Urban sprawl. Increasing problem of urban agglomerations in Poland*], Ekonomia i Srodowisko.

OSE, 2006, *Cambios de ocupación del suelo en España. Implicaciones para la sostenibilidad. Estudio realizado a partir del proyecto CORINE Land Cover*, Informe del Observatorio de la Sostenibilidad en España (OSE), Mundiprensa, Madrid.

OSE, 2010, *Sostenibilidad en España 2010*, Mundiprensa, Madrid.

OSE, 2012, *Sostenibilidad en España 2012*, Capítulo especial: energía sostenible para todos, Ministerio de Agricultura, Alimentación y Medio Ambiente, Madrid.

Rediam, 2014, 'Land use and cover monitoring and assessment in Andalusia (Spain)', Presentation from the project workshop held on 16 October 2014.

Sas-Bojarska, A., 2010, *Landscape protection — the challenge for sustainable planning*, 46th ISOCARP Congress 2010 (http://www.isocarp.net/Data/case_studies/1684.pdf).

Śleszyński, 2013, *Analiza stanu i uwarunkowań prac planistycznych w gminach w 2012 roku* [*Analysis of the advancement and conditions of planning activities in the municipalities in 2012*], Institute of Geography and Spatial Planning, Polish Academy of Sciences (https://www.mir.gov.pl/Budownictwo/Planowanie_lokalne_i_zagospodarowanie_przestrzenne/Informacje_przestrzenne/Planowanie_przestrzenne/Documents/analiza_2012.pdf).

Szafranko, E., 2010, ‘Procedura związana z przygotowaniem inwestycji drogowej w świetle specustawy’ [‘Procedure connected with preparing of road investment in view of *specustawa*’], *Czasopismo Techniczne* [*Technical Transactions, Civil engineering*], 1-B/2010.

UMWD (Urząd Marszalkowski Województwa Dolnośląskiego), 2014a, *Regionalny Program Operacyjny dla wojewodztwa dolnoslaskiego na lata 2007–2013* [*Regional operational programme for Lower Silesia 2007–2013*] (http://rpo.dolnyslask.pl/fileadmin/user_upload/documents/14maj/26/RPO_WD_30_04_2014.pdf) .

UMWD (Urząd Marszalkowski Województwa Dolnośląskiego), 2014b, *Regionalny Program Operacyjny dla wojewodztwa dolnoslaskiego na lata 2014–2020* [*Regional operational programme for Lower Silesia 2014–2020*] (http://rpo.dolnyslask.pl/fileadmin/user_upload/documents/14kwiecien/10/RPO_WD_projekt_08_04_2014.pdf).

UMWD (Urzad Marszałkowski Województwa Dolnośląskiego), 2014c, *Strategia Rozwoju województwa dolnośląskiego 2020* [*Development strategy of Lower Silesia 2020*] (http://strateg.stat.gov.pl/strategie_pliki/dolnoslaskie_2013.pdf).

Zathey, M., 2005, ‘Wrocławska strefa suburbialna. Zmiany morfologiczne, funkcjonalne i społeczne’ [‘Wrocław suburbian zone. Morphological, functional and social changes’), PhD thesis, Department of Natural sciences, Institute of Geography and Regional Development, Wrocław University, Wrocław.

Zathey, M., 2014, ‘Regional spatial planning policy’, presented at project workshop held in Brussels on 16 October 2014.

ZPORR, 2004, *Zintegrowany Program Operacyjny Rozwoju Regionalnego* [*Integrated operational programme of regional development*], OJ No 166, item 1745 (http://www.funduszeeuropejskie.gov.pl/OrganizacjaFunduszyEuropejskich/Documents/ZPORR_2004_2006.pdf).

European Environment Agency
Kongens Nytorv 6
1050 Copenhagen K
Denmark

Tel.: +45 33 36 71 00
Web: eea.europa.eu
Enquiries: eea.europa.eu/enquiries

Publications Office

European Environment Agency