

# The EU Cohesion Fund and Spatial Planning Strategies in Transport and Risk Prevention: Portugal (1995-2013)

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*As the name suggests, the Cohesion Fund is an EU redistributive instrument whose main goal is to promote territorial cohesion by financing projects in the Transport and Environmental territorial development components. This paper discusses its main effects in reducing regional disparities by increasing the territorial connectivity and in supporting risk prevention measures in Portugal throughout the last few decades. Furthermore, it presents the Cohesion Fund's main interventions and the existing spatial planning guidelines in these domains. In this context, it argues that, overall, the Cohesion Fund had a positive role in improving the Portuguese territorial connectivity and was instrumental in supporting some key goals of the Portuguese Transport Strategic Plan. In the environmental domain, however, the risk prevention goal was largely underfinanced, and the investments in this area were essentially devoted to coastal erosion prevention measures.*

## I. Introduction

Established in 1993 under the Maastricht Treaty, the Cohesion Fund (CF) is one of the three major Funds of the EU Cohesion Policy, together with the European Regional Development Fund (ERDF), and the European Social Fund (ESF). Yet, while the latter two can be used in all Member States, the CF is aimed at Member States whose *per capita* Gross National Income (GNI) is less than 90 % of the Community's average. Under this criterion, for the 2014-2020 programming period, this fund continues to benefit two (Portugal and Greece) of the four initial Cohesion Countries (Portugal, Spain, Greece and Ireland). In contrast, Ireland left this 'Cohesion' group in Janu-

ary 2004 and, in May 2004, with the European Union (EU) enlargement, all the new Member States qualified for the CF:<sup>1</sup> Bulgaria, Croatia, Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia and Slovenia.

The CF can be regarded as an additional redistributive instrument of EU Cohesion Policy, with some distinctive differences from the remaining Structural Funds. In summary, the CF resulted from "a political trade-off on the eve of the Maastricht Treaty concerning the costs of moving towards a Monetary Union, by which the EU committed itself further to the solidarity"<sup>2</sup>, and is specifically oriented to foster the development of transport and environmental infrastructures. However, and unlike the ERDF, the CF has a state-oriented nature of policy making, and the funding is granted on a project-by-project basis.

In the end, the CF aims to reduce regional disparities and promote sustainable development by supporting environmental and transport infrastructural projects. Overall, the breakdown of assistance to projects in the eligible sectors of environment and transport should be as balanced as possible (50:50 spending), as a national principle. Furthermore, the operationalization of the CF has become more and more integrated with the ERDF, following a proposal from the European Commission in the Third Cohesion Report.<sup>3,4</sup> For the present programming peri-

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1 Florio, M. *Evaluating Structural and Cohesion Funds Programmes*, (2006) *Regional Studies*, 40(0) pp. 211-224.

2 S. Borrás *EU multi-level governance patterns and the cohesion fund*, (2006) *European Planning Studies*, 6(2) pp. 211-225: p. 211.

3 European Commission (2004) *The Cohesion Fund. A boost for European solidarity*, Panorama 14.

4 European Commission (2004b) *A new partnership for cohesion – convergence, competitiveness, cooperation, Third report on economic and social cohesion*.

od (2014-2020), the scope of support from the CF remains focused on supporting areas related to sustainable development and energy which present environmental benefits, and transport infrastructure projects under the Connecting Europe Facility, with the following main investment priorities:<sup>5</sup>

- Supporting the shift towards a low-carbon economy in all sectors;
- Promoting climate change adaptation, risk prevention and management;
- Preserving and protecting the environment and promoting resource efficiency;
- Promoting sustainable transport and removing bottlenecks in key network infrastructures; and
- Enhancing institutional capacity of public authorities and stakeholders.

In this context, this article aims to clarify the effective contribution of the CF to reduce territorial imbalances in transport connectivity and to promote sustainable development by the implementation of risk prevention measures, from 1995 through 2013. The decision to focus more closely on the risk prevention component of the environmental policies was due to the lack of relevant analysis in this particular field in the available academic research, especially when it comes to the CF impact scrutiny. Also crucial to the CF analysis is to assess the relevance of the approved projects and the existing national spatial planning strategies and, more specifically, the transport and risk prevention ones, in view of the goals expressed in this paper.

In short, this article aims to answer the following research questions:

- To what extent has the CF been oriented by existing Portuguese Spatial Planning Strategic Guidelines in the Transports and Risk Prevention territorial development components?
- To what extent has the CF helped to reduce regional disparities in the Portuguese territory when it comes to transport accessibility
- To what extent have the CF approved projects contributed to strengthen the risk prevention policies in Portugal?

In order to answer these questions and to make our analysis more comprehensive, the article is divided into three main topics. The first topic highlights the role and the importance of the transport and the risk prevention policies within the main Portuguese ter-

ritorial development strategies. The second conceptualizes the relation between relevance of the approved Cohesion Fund projects in Portugal and the territorial needs and strategies. Finally, the third concludes the analysis of the main contributions of the Cohesion Fund to improve the territorial connectivity and to implement sound risk prevention policies in Portugal, in the last few decades.

## II. Methodology

This article follows a mix of quantitative (project and statistical) analysis and qualitative analysis provided by a plethora of CF evaluation reports, other EU reports, and available academic literature on this specific theme. In more detail, we made use of an extensive database of approved CF projects provided by the entity that managed both the ERDF and the CF in Portugal – the IFDR (Instituto Financeiro de Desenvolvimento Regional). In order to reach our research goals, all the projects were classified according to their main (transport or environment) and specific theme.

In order to provide a simple, coherent and integrated way to present the results of our analysis, this article introduces a theoretical model which evaluates both the ‘spatial context relevancy’ and the ‘impact of the CF interventions’, which can be used to compare the CF interventions with other case studies, in different EU Member States (see *Figure 1* in Annex). The ‘spatial context relevancy’ parameter relates the degree (from low to high) of the CF interventions and the existing spatial development strategies in each analysed policy area. Here, it is expected that the approved investments follow these existing strategic guidelines. On the other hand, the degree of the ‘impacts on territorial cohesion and sustainability’, together with the efficiency (relation between investment and results) and effectiveness (relation between goals and results), provides a picture of the ‘soundness’ of the CF investments in the analysed sectoral policies, which are expected to pro-

5 OJEU (2013) *Regulation (EU) n° 1300/2013 of the European Parliament and of the Council, of 17 December 2013 on the Cohesion Fund and repealing Council Regulation (EC) No 1084/2006*, available online at <<http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32013R1300&from=EN>>, accessed on 04 April 2014.

duce positive impacts in an efficient and effective manner.

In simple terms, the first parameter (Spatial Context Relevancy) raises a discussion about the need to adapt the EU policy evaluation processes to each Member State's territorial development idiosyncrasies (the place-based approach).<sup>6</sup> Here, it is possible to assess the 'relevance' of the selected projects by relating them with each Member State's spatial planning guidelines. Stated differently, this brings to the fore the need to use the available EU funds in a smart and sustainable way by focusing on the more relevant domains of regional development of a given territory. On the other hand, the CF investments should, as the name indicates, contribute to make a given territory more cohesive (by reducing transport regional disparities) and sustainable (by promoting environmental protection measures).

Furthermore, the need for sound public policies requires the assessment of their efficiency (comparing the results obtained/impacts produced and the resources mobilised) and effectiveness (comparing the initial goals and the results obtained/impacts produced).<sup>7,8</sup> To a large extent, in this particular study, both of these evaluation parameters will take into account the existing evaluation reports' main conclusions on the operationalization of the CF in Portugal,

and other related literature. Additionally, these insights will be complemented by further detailed territorial analysis on two components: transport and risk prevention policies.

In the end, we intend to provide a more holistic and territorial analysis of the CF relevance and impacts, when compared with the prevailing focus on the financial execution in the existing EU reports,<sup>9</sup> in order to check if the reviewed Territorial Agenda<sup>10</sup> set of principles associated with the Territorial Cohesion concept (harmonious, balanced, efficient, sustainable territorial development) are being implemented in Portugal, by the means of the CF investments.

### III. Cohesion Fund and Spatial Planning Strategies in Portugal: a Theoretical Approach

For a while now, the role of the EU structural funds operationalization in Portugal has floated out of the academic moorings in this particular theme and into the mainstream policy discourses. In concrete terms, the general assumptions lead to the conclusion that the EU structural funds provided the necessary financial resources to improve socioeconomic infrastructures, but they have been used in an ineffective, inefficient, and unbalanced way.

Ineffective and inefficient, because despite the large volume of financing (more than € 80 billion) that Portugal received within the framework of the EU Cohesion Policy<sup>11</sup> in the last three decades (1986-2013), the country could not be removed from the Cohesion Countries EU list (unlike Spain and Ireland). Nevertheless, the Portuguese economy's positive performance through the end of the 20<sup>th</sup> century is often associated with the initial EU funds absorption, which worked better than expected in this peripheral EU country.<sup>12</sup>

Unbalanced, because these investments were largely concentrated in a small number of territorial development components: socioeconomic infrastructures (mainly roads and public sanitation - ERDF) and human capital (ESF). Furthermore, the regional distribution of the funds (in total) favoured the already more dynamic metropolitan areas of Lisbon and Porto.<sup>13</sup> In relative terms, the CF accounted for about 11 % of the total investment of the EU Cohesion Policy in Portugal (see *Figure 2* in Annex).

6 F. Barca *An Agenda for a Reformed Cohesion Policy: A place-based approach to meeting European Union challenges and expectations*, Independent Report prepared at the request of Danuta Hübner, Commissioner for Regional Policy Brussels: DG Regional Policy (2009), available online at <[http://ec.europa.eu/regional\\_policy/archive/policy/future/pdf/report\\_barca\\_v0306.pdf](http://ec.europa.eu/regional_policy/archive/policy/future/pdf/report_barca_v0306.pdf)>, accessed on 21 November 2015.

7 European Commission (1999b) *MEANS – Evaluation socio-economic programmes – Evaluating Design and Management, Volume 1*.

8 European Commission (2008) *EVALSED - The Resource for the Evaluation for Socio-Economic Development*.

9 European Commission (2011) *Annual Report on the Cohesion Fund (2010)*, Commission Staff Working Paper.

10 Territorial Agenda (2011) *Territorial Agenda of the European Union 2020. Towards an Inclusive, Smart and Sustainable Europe of Diverse Regions*, agreed at the Informal Ministerial Meeting of Ministers responsible for Spatial Planning and Territorial Development on 19th May 2011, Gödöllő.

11 A. Mateus (coord.) *25 anos de Portugal Europeu. A economia, a sociedade e os fundos estruturais*. (Ed.) Fundação Francisco Manuel dos Santos, Lisbon.

12 R. Leonardi *Cohesion in the European Union*, *Regional Studies*, 40(2) pp. 155-166.

13 E. Medeiros *Assessing Territorial Impacts of the EU Cohesion Policy: The Portuguese Case* (2013) *European Planning Studies*, Vol. 22 (9), pp. 1960-1988.

Hence, its role in the implementation of the Portuguese spatial development strategies is not negligible, if regarded as a key complementing tool for territorial development in a globalizing world dominated by unfettered markets, which are not meant to solve social problems.<sup>14</sup>

In this context, spatial planning provides more opportunities to actively deliver the necessary changes to territorial development, depending on how the appropriate actions are selected and engaged by local and regional communities.<sup>15</sup> Despite the lack of a commonly agreed definition, spatial planning can be regarded as a set of “methods used largely by the public sector to influence the future distribution of activities in space”.<sup>16</sup> From another perspective, it can be seen as a systematic preparation of spatial policies<sup>17</sup> that mainly aims to “develop a resilient land system which can respond quickly to changes in global circumstances and markets”.<sup>18</sup>

Also, spatial planning is still basically a competence of the Member States in the sense that land use regulations are seen to be very close to questions of sovereignty. Thus, “there is little reference to spatial planning in Commission reports published in the 1990s, and virtually none in documents published over recent years”.<sup>19</sup> Indeed, the European Spatial Development Perspective, which can be seen as one of the most important milestones in framing the territory as a new dimension of European policy, was published long ago (1999). Specifically, when it comes to the notion of spatial planning, it underpins its importance to avoid increases in regional disparities and to protect humans and resources against natural disasters.<sup>20</sup>

Simply put, up until the late 1990s, Spatial Planning Policies in Portugal lacked an integrated legal instrument despite all the progress made in the production of a series of spatial planning instruments.<sup>21</sup> In reality, the Portuguese National Spatial Policy Programme (NSPP) only entered into force in 2007 with the designated goal of being a key tool of territorial development, with a strategic nature and a nationwide perspective.

In short, the NSPP establishes a spatial planning vision for the Portuguese territory for the coming decades by identifying 24 territorial and spatial planning challenges.<sup>22</sup> Amongst those challenges is the need to promote the risk management process, which still lacks consideration in certain domains, such as floods, forest fires, and coastal erosion. Fur-

thermore, the transport sector faces huge challenges in modernizing the existing airport, railway, and port systems, namely in better connecting the national infrastructures within the Iberian, Atlantic, European, and Global systems. In addition, there is a need to correct the deficient intermodal integration, the excessive dependence on roads and the use of cars, and the insufficient development of the railway system.<sup>23</sup>

More precisely, when it comes to the transport sector in Portugal, the main guidelines expressed in the Transport Strategic Plan (TSP) establish as its main goals to reach by 2020: to attain a transport system that contributes to social and territorial cohesion and to a robust and globally integrated economy, following a safe, comfortable, environmentally friendly, and efficient system, energetically speaking.<sup>24</sup> It also identifies four specific aims and several concrete operational objectives for each one of these goals (see *Figure 3* in Annex).

In turn, the environmental sector policies are guided by the ‘National Strategy for Sustainable Development’ (NSSD)<sup>25</sup> and the ‘National Program on Climate Change’ (NPCC) which brings together a set of

14 Y. Muhammad and K. Weber *Creating a World without Poverty: Social Business and the Future of Capitalism*. (2007) Public Affairs, New York.

15 J. Morphet *Effective Practice in Spatial Planning*. (2010) The RTPI Library Series, Routledge, London and New York.

16 European Commission (1997) *The EU compendium of spatial planning systems and policies*, Regional development studies, p. 24.

17 A. Faludi *Cohesion, coherence, cooperation: European spatial planning coming of age?*, (2010) The RTPI Library Series, Routledge, London and New York.

18 M. Tewdwr-Jones *Spatial Planning and Governance. Understanding UK Planning*, (2012) Planning, Environment, Cities, Palgrave Macmillan, Hampshire. p. 35.

19 S. Dühr, C. Colomb, V. Nadin *European spatial planning and territorial cooperation*, (2010) Routledge, London, p. 29.

20 European Commission (1999) *European Spatial Development Perspective - ESDP*.

21 DGOTDU (2007) *Programa nacional da política de ordenamento do território (PNPOT)*, Relatório final - 07-09-2007, DGOTDU, Lisbon.

22 OECD (2008) *OECD Territorial Reviews – Portugal*, Organization for Economic co-operation and development, Paris.

23 See fn. 21, p. 6.

24 MOPTC (2009) *Plano Estratégico de Transportes 2008-2020*, Ministério das Obras Públicas, Transportes e Comunicações, Lisbon, p. 156.

25 MCOTA (2002) *Estratégia Nacional para o Desenvolvimento Sustentável ENDS 2005-2015*, Ministério das Cidades, Ordenamento do Território e Ambiente/Instituto do Ambiente, Lisbon.

policies and measures in order to comply with the Kyoto Protocol. The former sets out an ambitious vision to make Portugal one of the most competitive EU Member States by 2015, when it comes to the environmental quality, cohesion and social responsibility. The latter is particularly focused on supervising greenhouse gas emissions, which might contribute to climate changes,<sup>26</sup> and does not address the risk prevention topic, despite the close relationship between climate change, extreme weather events and disaster risk.<sup>27,28</sup> The NSSD addresses the risk prevention matters, namely in its fourth main goal: a balanced spatial planning that valorises Portugal within the European Space. This goal is then developed into a set of concrete proposals aiming at mitigating some specific vulnerabilities of the Portuguese territory (see *Figure 4* in Annex).

Following this rationale, and going back to the first research question of this study (*to what extent has the CF been oriented by existing Portuguese Spatial Planning Strategic Guidelines in the Transport and Risk Prevention territorial development components?*), a cursory glance at the financial distribution brought about by the CF in Portugal in these domains (see *Table 1* in Annex) prompts the following generic assumptions:

- In the Transport domain, the CF in Portugal provided significant financial support to improve transport infrastructures, especially at the intra-regional level, but also to promote better internation-

al integration. In addition, although on a smaller scale of investment, support was given to improve urban mobility, namely by modernizing and extending the metro transport systems of Lisbon and Porto; and

- On the other hand, in the Risk Prevention domain, the CF in Portugal did not provide such a large financial package, as it only accounted for 4 % of the executed investments – half of which was destined to act against coastal erosion. Furthermore, it has been used to mitigate the risk of fire (forest and urban) by financing firehouse facilities and operational equipment.

#### IV. Territorial Needs and Strategies in Portugal: the Last Two Decades

When Portugal joined the European Union in 1986 many challenges lay ahead to unlock the country's territorial potential in almost all developmental domains. To put it bluntly, some of the mainstream structural bottlenecks to territorial development in Portugal were found in the following areas: (i) peripheral geographical position within the European context; (ii) longstanding tradition of excessively centralized governance and no elected regional level; (iii) weak economic growth and limited public spending capacity; (iv) lack of sufficient and modern socioeconomic and technological infrastructures; (v) obsolete and unproductive secondary sector; (vi) excessive role of the primary sector; (vii) lack of environmental protective legislation; (viii) excessive dependency of external energy sources; (ix) low levels of skilled labour and tertiary education; (x) unbalanced regional development; and (xi) strongly negative trade balance, to name the most relevant.<sup>29,30,31</sup>

Needless to say, the Portuguese territorial development needs were of mammoth proportions in most areas, and, in 2015, they still are, in some territorial development components within the EU context. Yet, many advances have been made with the direct and indirect help of the massive EU structural funds transfers, with a view to 'mainly' finance the following areas: (i) infrastructure (accessibilities, water supply and public sanitation); (ii) basic public services (health, education and culture); (iii) enhancement of human capital; (iv) incentives to companies; and (v) support for innovation.

26 MAOTDR (2009) *Políticas para as Alterações Climáticas*, Ministério do Ambiente, do Ordenamento do Território e do Desenvolvimento Regional, Lisbon.

27 IPCC (2012) *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation*, A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change [Field, C.B., V. Barros, T.F. Stocker, D. Qin, D.J. Dokken, K.L. Ebi, M.D. Mastrandrea, K.J. Mach, G.-K. Plattner, S.K. Allen, M. Tignor, and P.M. Midgley (eds.)]. Cambridge University Press, Cambridge.

28 Ø Hov and co-authors *Extreme Weather Events in Europe: preparing for climate change adaptation*. (2013) Norwegian Meteorological Institute, Oslo.

29 MPAT (1989) *Quadro Comunitário de Apoio do PDR, Plano de Desenvolvimento Regional 1989-1993*, Ministério do Planeamento e da Administração do Território, Secretaria de Estado do Planeamento e Desenvolvimento Regional, Lisbon.

30 MPAT (1993) *Preparar Portugal para o Século XXI – Análise económica e social*, Ministério do Planeamento e da Administração do Território, Secretaria de Estado do Planeamento e Desenvolvimento Regional, Lisbon.

31 MPAT (1993b) *Preparar Portugal para o Século XXI – Opções Estratégicas*, Ministério do Planeamento e da Administração do Território, Secretaria de Estado do Planeamento e Desenvolvimento Regional, Lisbon.



## 1. The Highway Path versus the Railway Putting-aside Vision

By the 1970s, transport infrastructure in Portugal was out of date and inadequate based on the growing traffic demands. At that time, the road network was the result of the first National Road Plan drawn in 1945 (Law 34-593, 11 May 1945), covering more than 20,000 km. In 1978, the preliminary studies for the road plan revision took place. Yet, they were only approved in 1985 (PRN85 - Law 380/85, 26 September). Composed of 10,000 km of roads with adequate geometry and higher quality service, the plan established a new road hierarchy, connecting the major urban areas, ports, and main border crossing points. The reduction of the network extension from 20,000 km (1945) to 10,000 km, in 1985, was the result of financial constraints and the need to improve the quality of the road infrastructure.

The present road plan (see *Figure 5* in Annex) is the result of the final set of 16,000 km road network of the National Road Plan 2000, approved in 1998 (Law 222/98, 17 July<sup>32</sup>), which maintained the general goals of the previous plan, while aiming to promote a more balanced national and regional network coverage. The operationalization of the road plans allowed the shrinking of the Portuguese territory through time-distance reduction and, at the same time, the reduction of road fatalities.

*By the 1970s, the road network was the result of the first National Road Plan drawn in 1945. It foresaw a (total) road network of 20,000 km. In 1985, this original plan was revised down to 10,000 km of roads, as a result of financial constraints and the need to improve the quality of the road infrastructure. A new revision took place in 2000. It foresees some 16,000 km of roads, of which almost 80 % are already completed. These numbers refer to the central administration responsibility, being the remaining roads of municipal competence.*

Portugal halted the enlargement of the rail network by the end of the 1940s. Two decades later (1960s), some lines were closed, namely because of a constant decline in passengers' demand, due to the increasing competition of road transport. In the 1980s a restructuring plan was defined (Plano de Modernização dos Caminhos de Ferro, approved by Ministerial Council Decision 6/88, 19 February). The plan aimed at increasing the railroad capacity and security through the geometric correction of tracks, signalling,

automatic speed control, and the electrification of the network. The present rail network (2800 km), mostly in Iberian gauge, is classified in three levels (see *Figure 6* in Annex). The main network crosses the coastal area, from Braga to Faro, serving all the national major ports and allowing intermodal transport.

The access to structural and cohesion EU funds enabled the implementation of a huge infrastructural development programme in Portugal, which followed the road and railroad plans. However, these EU investments (ERDF + CF) put a higher emphasis on road infrastructure, rather than on the railway. At present, almost 80 % of the planned road network is completed. Yet, concerning the railroad connections, the initial plan is far from concluded, and the high-speed rail project was postponed *ad aeternum*. Even so, over the last few decades, the national railway service made significant improvements, namely on the suburban passenger service of Lisbon and Porto, and on the connection to Spain, through the Beira Alta line. Conversely, the Northern line renovation is not yet concluded, and a new direct connection from Sines port to Spain remains a mere blueprint.

## 2. A Late Wake up to Risk Prevention

The Portuguese mainland is exposed to a set of natural, technological and environmental hazards, all relevant, and which should be taken into account when defining spatial planning strategies. Amongst these hazards are earthquakes, tsunamis, coastal erosion processes, landslides, floods and flash floods, industrial accidents, accidents during the transport of dangerous substances, potential dam failures, and urban and forest fires (see *Figure 7* in Annex). The coastal zone (west and south) is especially exposed to a large number of natural and technological hazards, whereas the inland area is exposed mainly to landslides, forest fires and dam failure (very low probability). The Lisbon Metropolitan Area, together with the Lower Tagus Valley and the Algarve region, are the most exposed zones to such dangerous phenomena in the country.

Unlike what happened in other EU countries, the law and practice of spatial planning in Portugal did

32 In 2003 small changes were introduced by Law 182/2003, 16 August.

not properly consider the prevention of natural and environmental risks. The lack of horizontal coordination of public policies dealing with civil protection, spatial planning and urbanism explains the non-implementation of risk prevention policies in Portugal.

The fundamental law regulating spatial planning and urbanism in Portugal (Law 48/98) states that protection of people against the effects of natural disasters is within the spatial and urban planning intervention arena. However, the assessment of hazards and risks is virtually absent on the topic of spatial planning and urbanism objectives, as well as on the description of technical instruments for territorial management and the definition of public interests with territorial expression.

The importance given to risk prevention has changed drastically in Portugal since 2007 with the approval of the National Spatial Policy Programme (NSPP). The NSPP considers risk prevention one of the key topics within the Portuguese Territorial Model. In particular, the NSPP requires the identification of dangerous areas and the definition of the establishment of compatible land use in those areas in order to prevent and mitigate risks. The NSPP guidelines constitute a shift in the dominant paradigm in the risk approach in Portugal, with the evolution from a 'reactive culture' ('disaster response') to a 'prevention culture' ('prevent and mitigate the risk'), in line with the international guidelines, namely the Hyogo Action Plan for 2005-2015.<sup>33</sup> Therefore, the 'new generation' of Portuguese spatial plans should ensure the correct use of natural resources and the safety of the people by preventing and minimizing risks.

33 ISDR *United Nations International Strategy for Disaster Reduction*, (2005) Hyogo Framework for Action 2005-2015. Building World Conference on Disaster Reduction, 18-22 January 2005, Kobe, Hyogo, Japan. United Nations, Geneva.

34 W. Molle *European Cohesion Policy*, (2007) Routledge, London.

35 See fn. 2, p. 11.

36 A. Rodríguez-Pose *The European Union – Economy society, and policy*. (2009) Oxford University Press, London.

37 See fn. 19, p. 6.

38 See fn. 22, p. 6.

39 See fn. 13, p. 5.

40 Mairate, A. *The 'added value' of European Union Cohesion policy*, (2006) *Regional Studies*, 40(2), pp. 167-177.

41 Pires, L.M. *A política Regional Europeia e Portugal*, (1998) Fundação Calouste Gulbenkian, Serviço de Educação, Lisbon.

42 European Commission (2010) *Investing in Europe's future: Fifth report on economic, social and territorial cohesion*. (EC, 2010: 205).

## V. Results

### 1. The Cohesion Fund in Portugal: Towards a more Cohesive and Sustainable Country?

The EU Cohesion Policy is commonly regarded as a controversial subject when it comes to assessing its negative or positive territorial impacts, although the dominant view is more or less positive.<sup>34</sup> Be that as it may, two things seem certain. For one, and for some time now, the Structural and Cohesion Funds have become the largest redistributive instrument in the EU.<sup>35</sup> Secondly, the early European regional policies were not able to tackle regional and socioeconomic imbalances in Europe.<sup>36</sup> Even so, it goes without saying that, by being one of the mainstream EU investment policy tools, Structural and Cohesion Funds have a significant, although under-researched, impact on the European territory.<sup>37</sup>

In this regard, Portugal might offer a compelling case study in what the operationalization of the EU Cohesion Policy is concerned because for a long time the measures taken under this policy, with the goal to promote regional development, have not been complemented by any further actions and policies.<sup>38</sup> In other words, it is not completely incorrect to stress that the Portuguese Regional Policy is basically a result of the implementation of EU Regional Policy executed policies/programmes/projects from 1986 until 2015. As a consequence, and given the bulk of the investments absorbed by the Portuguese regions, the impacts of these investments in the Portuguese territory are clear in both their positive and negative forms,<sup>39,40,41</sup> even though many of them will only emerge in the longer-term.<sup>42</sup>

Despite the relative scale of spending associated with the CF in Portugal in the last couple of decades, which accounted for no more than 11 % of the EU Cohesion Policy's total investment in this EU Peripheral Member State, the fact of the matter is that, in all, almost € 12 billion were spent in supporting transport and environmental projects. Furthermore, 70 of the more than 800 projects approved under the CF in Portugal (1995-2013) received more than € 50 million. In turn, 24 were contemplated with more than € 100 million, most in the transport domain. Even so, the environmental domain prevailed in the overall financial distribution of the CF due to the large scale investments used in the water treatment and supply

infrastructures, which accounted for around ¼ of the total executed funds (see *Table 2a and 2b* in Annex).

Critically, the national goal of 50-50 per cent (transport-environmental sectors) spending ratio was not exactly attained. What is worrying, however, are the low volumes of investment channelled to the 'renewable energies' component, *vis-à-vis* the country's energy needs. What is more, the prevalence of the investment in road infrastructures, in line with the ERDF fund preferences, counteracts the country's strategic transport guidelines in promoting the modernization of the railway infrastructures as a key goal to improve the accessibilities of the Portuguese territory against the already over-modernized main road and highway system. Even so, the CF has had a positive impact on the modernization of the infrastructure of the railways, ports and airports. More precisely, there is no doubt about the critical role of the CF in Portugal in financing the modernization of the Portuguese territorial accessibilities, despite the fact that the ERDF devoted a larger share (around € 15 billion - 25 % of the total investment - 1989-2013) to this crucial domain of territorial development.

Conversely, the Risk Prevention domain only recently (2007-2013) entered in the Portuguese CF investment guidelines (in line with the 'late wake up to risk prevention' mentioned under chapter 4.2). Consequently, the territorial impacts of the related executed projects are yet to be measured. Nonetheless, such recent strides are a positive turnaround for the environmental policy in Portugal, especially in the measures taken in the coastal erosion component. Indeed, since 2000, the ERDF only allocated around € 256 million to support Risk Prevention Measures (€ 170 million 2000-2006 / € 86 million 2007-2013), which is a smaller amount than the CF contributed (€ 446 million).

Running parallel to this uneven financial distribution in the analysed sectors (transport and risk prevention), and putting aside the efficiency/effectiveness of the implemented CF projects, broadly speaking, it can be assumed that they helped improve the accessibilities at several territorial levels (local, regional, and national), while these impacts were much less pronounced in the support to Risk Prevention measures.

This paints a clearer picture of regional unbalanced investments (in total) that favoured the most developed metropolitan areas of Lisbon and Porto, and also Faro (Algarve) and Funchal (Madeira) (see

*Figure 8* in Annex), while most of the depopulated interior of the Portuguese continental areas were largely neglected by this fund. Then again, a more detailed analysis of the CF distribution (at the municipal level) confirms the idea that the CF has a state-centred nature<sup>43</sup> and is often used in specific infrastructural flagship projects, frequently with a multi-regional perspective (like railroads and motorways). Hence, at the municipal level, one can detect immense regional disparities, with gains in harbour (ports' location) and other densely populated areas. In view of this, we can conclude that, overall, the CF in Portugal was not a decisive tool to make Portugal a more cohesive country despite its pivotal role in improving the territorial accessibilities and environmental sustainability. In this aspect, one must stress that a major part of the investment in railway lines and ports was also in line with wider sustainable development objectives.<sup>44</sup>

A similar line of reasoning is put forward by the latest EU CF annual report, which maintains that, in the environmental domain, the projects under implementation helped "to promote, develop and complete the basic environment infrastructure as well as to ensure the conditions for sustainable development environmental protection and management of natural resources. These projects relate to the priority sectors of Water Supply, Sewerage and Wastewater Treatment and Urban Waste Management".<sup>45</sup> Nevertheless, not all the previously defined objectives in the environmental domain were attained.<sup>46</sup> For its part, in the transport sphere, the same report concludes that "the projects being implemented contributed to the development of the Trans-European Transport Network and to enhance multimodal articulation between the various means of transport in place".<sup>47</sup> However, the CF was not capable of correcting the existing regional imbalances between the road and the remaining modes of transport.<sup>48</sup>

43 See fn. 2, p. 11.

44 European Commission (1999c) *The socio-economic impact of projects financed by the Cohesion Fund. A modelling approach*, Volume 1.

45 See fn. 9, p. 4.

46 P. Correia (Coord.) *Estudo de Avaliação do Fundo de Coesão em Portugal (1993-2006)*, (2007) Volume 1 – Sumário Executivo. Outubro 2007, Direcção-Geral do Desenvolvimento Regional, Lisbon.

47 See fn. 9, p. 4.

48 See fn. 46, p. 14.



Even so, a simple regional (re)distribution analysis (total and per capita) of the CF in Portugal provides some general conclusions in this regard. At first glance, the CF did not seem to favour the territorial cohesion goal in Portugal in the last couple of decades, as the most dynamic and developed Portuguese Region (Lisbon) received one quarter of the total investment. Yet, another perspective comes alive if we consider that the North of Portugal (Norte), which is the less developed continental region, topped the rank of the most supported regions in this regard. Additionally, the per capita analysis highlights the position of the two Portuguese Archipelagos, and brings the most populated regions (North, Lisbon and Centre) to the other extreme of the table (see *Figure 9* in Annex).

Evidently, this article alone cannot deliver all the evidence on the performance of the CF in Portugal. Thereby, when it comes to its main impacts on correcting regional imbalances/promoting territorial cohesion, we tried to build a concise picture based on the available evaluation reports, statistical evidence, and projects' analysis. Moreover, we are aware that the 'cohesion', and namely the 'territorial cohesion' analysis, is far from straightforward because the cohesion notion is riddled with ambiguities, which tend to provide a cover for the political debate on the objectives to be pursued.<sup>49</sup>

Regarding the socioeconomic impacts of the CF, another EU report used a modelling approach to determine that in Portugal, "public investment generates more private investment in the richest regions, but in the other regions no significant estimates were obtained" (EC, 1999c: 96), and that "private investment have a positive and significant correlation with total and productive public spending".<sup>50</sup> Yet, a more holistic and recent analysis highlights the Cohesion Fund's crucial role in promoting the socioeconomic cohesion in Portugal by generating Portuguese wealth. More specifically, this study attributes an es-

timated € 5 billion plus (at 1995 values) of the Portuguese GDP, in the long-term, to the CF, which is particularly high (6 % of the GDP in 1995).<sup>51</sup>

On a more critical note, the effects of the CF in Portugal on the employment rate were only relevant temporarily, like in similar mainstream infrastructural programmes and policies. As such, in the long run, no positive impacts are foreseen in this domain. Even so, the accumulated effects of the CF in employment creation are expected to be significant. Here, more than 50,000 jobs could have been created/maintained until 2011 by the approved CF projects and other associated public investments. In addition, positive effects on regional development are also encountered in the strengthening of institutional competence, the application of EU directives, and in the concretization of some relevant sectoral goals (transport and environmental) that, in turn, directly and positively contributed to improve the general population's living standards.<sup>52</sup>

Regarding the added-value of the CF to territorial development in Portugal, one study maintains that it is particularly visible in the socioeconomic cohesion due to the positive effects in the GDP and employment, and also in the implementation of management and evaluation best practices, despite the lack of maturity of some presented projects and the lack of celerity in the project approval processes, due to the undersized management structures.<sup>53</sup> Indeed, some additional concerns about the operationalization of the CF were pointed out by yet another EU report, some of which could be applied to the Portuguese case: (i) not many projects were truly effective in supporting the transport policy objectives; (ii) none of the audited regions had a long-term port development plan; (iii) administrative procedures are long and burdensome; and (iv) little consideration was given to monitoring and supervising the project results.<sup>54</sup>

## 2. Focusing on Improving Existing Road and Railway Infrastructures in more Developed Areas

Over the last couple of decades, the CF investments in transport were largely centred on road and railway infrastructures (80 %). Conversely, the allocated share to airport infrastructures, by this fund, did not represent more than 5 % of the total package, and it

49 S. De Rynck and P. McAleavy *The cohesion deficit in Structural Fund policy*, (2006) *Journal of European Public Policy*, 8(4). pp. 541-557.

50 See fn. 44, p. 13.

51 See fn. 46, p. 14.

52 See fn. 46, p. 14.

53 See fn. 46, p. 14.

54 ECA (2012) *Using Structural and Cohesion Funds to co-finance transport infrastructures in seaports: an effective investment?* European Court of Auditors, Special Report No 4, Luxembourg.

was mainly concentrated in the Funchal Airport renovation flagship project. Finally, the remaining 9% were put into the ports' network renovation.

At first glance, one could conclude that the investments of the CF in road infrastructure had priority over the railway investments. Nevertheless, the amount allocated to each mode ended up to be quite similar: 44 % for rail and 41 % for road. The visibility of new road constructions was probably the main reason for this common misleading understanding. In fact, the CF investments in the railway system were mostly concentrated in extending the north bank to the south bank of the Tagus River, while the road infrastructures were extended in a myriad of locations.

Of course, we cannot forget that during this period (1995-2013), the urban rail systems of Lisbon and Porto suffered a tremendous transformation. More specifically, in Lisbon, these changes can be seen in the extension of the Red Line of the metro network, from the city centre to the EXPO 98 and, later on (2012), to the airport. Also, in Porto, we can point out the development of the Light Rail System, which represented more than 11 % of total transport investment during the analysed period. On the other hand, the improvement of the road system, during the first CF Programme (1995-1999) was particularly impressive. Here, more than three out of every five euros were invested in the road system, which contributed to the notion that these investments prevailed over the remaining ones.

At the same time, the quality of the road network and the accessibility improvement is widely visible by anyone who travels within the Portuguese territory. Nonetheless true, the improvements in the railway system are quite visible in the extension and the modernization of the urban railway systems, and the railway infrastructures used to cross the Tagus River. However, a large part of these investments was put into modernizing the security systems and the electrification of this network, unlike the common public perception. Even more worrying is the reduced gains from these investments in improving the accessibilities, and also in extending the network to other urban areas. Even so, credit should be given to the gains in the railway network security and energy efficiency levels.

Going back to one of our guiding research questions (*to what extent have the CF helped to reduce regional disparities in the Portuguese territory when it comes to transport accessibilities?*), and given a more

detailed look at the location of the CF flagship project on the transport domain (see *Figure 10* in Annex), one can conclude that it did not reduce regional disparities in the improvement of accessibilities, since the bulk of the investment was concentrated in the most developed and populated areas.

Nevertheless, from a national and EU perspective, these investments ensured and enabled the improvement of the country's transport system by strengthening transport links, both internal and external. Put differently, the CF brought cohesion in transport accessibilities at the EU level, but not internally. Even so, it was key for the following: (i) accelerating the road network development; (ii) reducing road accidents; and (iii) benefitting the two Autonomous Archipelagos' transport infrastructures (Madeira and Azores), and thus reducing their peripheral condition in terms of accessibility towards the remaining European space.<sup>55</sup>

From a broader perspective, the NSPP claims that, in the last couple of decades, the Structural Funds accelerated the territorial infrastructural process and that Portugal suffered profound changes in the infrastructure and equipment networks, with positive reflections in the overall population's well-being. Indeed, the significant development of the road network, which constitutes the main territorial structural tool, has significantly improved the international, inter-regional and inter-urban accessibilities. However, on the negative side, from 1991-2001, the railway lines were reduced (minus 303,8 km), even though the electrified lines increased significantly (443,7 km between 1991-2001). Yet, the railway still plays a secondary role in the population's mobility and in the transportation of merchandise. Even so, the railway can be regarded as a competitive transport mode at the urban and sub-urban scale.<sup>56</sup>

### 3. A Reduced Impact on Risk Prevention Measures

Besides the transport sector, the CF aims to support measures that promote environmental sustainability. In this paper, we decided to concentrate our analysis on the Risk Prevention approved projects of the

<sup>55</sup> See fn. 46, p. 14.

<sup>56</sup> See fn. 21, p. 6.

environmental domain. Here, one useful entry point was the reduced overall investment in this particular component of environmental sustainability. Even more worrying was the large amount of small budget (less than € 200,000) projects that were used to support fire station equipment and installations during the 2007-2013 programming cycle, since such types of projects are not exactly environmental infrastructural projects.

In addition, some other risk prevention policy components were strongly neglected by the CF, like the seismic and climate risks. This is particularly hard to understand in the light of the Portuguese risk panorama.<sup>57</sup> Hence, and in view of our last research question (*to what extent have the CF approved projects contributed to strengthen the risk prevention policies in Portugal?*), we can conclude that the CF approved projects made a minute contribution to strengthen the risk prevention policies in Portugal, in most components, with the exception of the coastal erosion measures.

To make this case, *Figure 11* (in Annex) shows the relative distribution of CF investments allocated to risk projects per Portuguese municipality. Funds of projects developed at the national and regional level (NUTS2) were arithmetically allocated to the corresponding municipalities. The reading of the map demonstrates the weight of investment in coastal erosion protection infrastructure, especially in the region of Aveiro, Lisbon and the Algarve. For their part, some municipalities in the inner central part of the country (*e.g.* Castelo Branco and Ponte de Sôr) received a large amount of funds to support airport infrastructure used by Civil Protection. Finally, it can be seen that municipalities of Algarve received, on average, higher amounts of financing, compared to the Alentejo region, which may be justified by the lower territorial incidence of dangerous phenomena in this region (see *Figure 7* in Annex).

In this light, and despite the large amount of funds spent on civil protection and fire departments' infrastructure and equipment, a structured guidance towards risk prevention associated with the civil protection policy was not visible. In addition, there were significant imbalances within the measures dedicated to mitigate risks, which tend to follow a reactive, rather than a preventive intervention perspective. In-

deed, the non-structural measures for the prevention of coastal erosion represented merely 8.63 % of the total investment.

On the other hand, funds assigned to risk assessment, risk management, and risk communication amounted to just € 28 million (6.29 % of total investment in 'risk projects'). In addition, within this topic, more than € 22 million were spent on a single experimental project on cadastral mapping. But even if we disregard this latter case, the financial effort devoted to non-reactive civil protection measures accounted for only 1.3 % of the total Cohesion funds mobilized by 'Risk Prevention related Projects'.

In short, the CF applied in risk projects in the period 2008-2013 was mainly used to finance structural measures against coastal erosion and to reinforce the Civil Protection and Fire Department infrastructure and equipment. Also, the structural investment against coastal erosion has proved ineffective, even in the short-term, as evidenced during the winter of 2013-2014, when a series of sea storms heavily damaged some of the defence infrastructure built with the CF's financial help. More crucially, the CF was not used for any pilot project aiming at implementing the programmed and controlled retreat of the population from those coastal zones, which are subject to very high risk. In fact, in the context of climate change and sea level rising, this is the only preventive measure sustainable in the medium and long run.

On a more positive note, the CF enabled the modernization of fire departments; however, this funding was not preceded by any rigorous assessment of the country's real need for firefighting equipment, especially for fighting forest fires. Finally, the CF was not used to support the maintenance of existing natural hazards monitoring systems. Also, it did not contribute to the very much-needed implementation of early warning systems for hazards, which may generate disaster risks, like flash floods, slope instability, tsunami, and thunderstorms.

Overall, and following from all the previous considerations, *Figure 12* (in Annex) presents a conclusive and contrasted picture of the CF investment effects on both the 'Transport Infrastructures' and 'The Risk Prevention' measures in Portugal. In sum, these effects were more positive in the former domain than in the latter, both in the spatial context and in their impacts on a more cohesive and sustainable territory. Also, and following from the main conclusion of available literature, the efficiency of these invest-

57 See fn. 21, p. 6.

ments was clearly higher in the transport domain than on the risk prevention interventions, while the effectiveness was more or less the same. For the sake of clarity, the relative high efficiency (relation between investments and results) of the CF investments in the transport domain results from their extremely positive impacts in improving the Portuguese territorial accessibility, in view of the investments made. On the counterpart, the reduced degree of effectiveness (goals vs results) is a consequence of a lack of vision in selecting the most appropriate transport infrastructure projects, namely by following the existing strategic guidelines on this policy arena. Put differently, the efficiency would have been higher if, for instance, the CF had a positive impact on extending and modernizing the national railway infrastructure, as defined by existing transport policy strategies.

## VI. Conclusion

For the most part, the CF represented a substantial and additional (to the ERDF) financial instrument to improve transport and environmental infrastructure, with a view to improve territorial accessibility and environmental sustainability. In all, it accounted for 11 % of the total EU support in Portugal from 1989-2013, and while it was pivotal to modernizing the transport infrastructure, it had a reduced impact on the risk prevention measures.

By having a non-regionalized and more national investment perspective, it provided fertile ground to finance flagship infrastructure projects, like the new Tagus Bridge, the Funchal Airport (Madeira), and the new Lisbon and Porto metro lines and stations. Also, its high flexibility and accountability, when compared with the ERDF and ESF funds, enhanced its efficiency and effectiveness, according to the existing evaluation reports.

Nevertheless, the close to € 12 billion received by Portugal during the analysed period (1995-2013), within the framework of the CF, were not enough to make the Portuguese territory more cohesive,<sup>58</sup> at the national scale. Worse still, the bulk of the Cohesion Funds was, with some exceptions, directed to the already more socioeconomically dynamic and densely populated Portuguese areas. Even so, this fund produced positive effects in the national GDP, the employment rate, and the improvement of the living standards of the Portuguese population, in general.

On the other hand, the CF approved projects in Portugal were crucial in implementing many of the Spatial Planning Strategic Guidelines in the transport domain, both in a more holistic perspective (improving territorial articulation, international integration and urban mobility) and in certain specific operational objectives, such as: (i) improved road infrastructures, (ii) competitive and articulated ports, (iii) inter-regional connectivity, and (iv) potentiate inter-modal integration. Hence, on the whole, the CF had a positive effect on improving territorial accessibility in Portugal.

Conversely, the Risk Prevention measures received much less attention from the CF, financially speaking (4 % of the total investment). Consequently, the effects on strengthening the Portuguese risk prevention policies were less effective. Nevertheless, some positive results can be observed in the risk mitigation of the coastal erosion of the Portuguese widely exposed littoral. Also, many projects ended up having pivotal importance in supporting the fire-station headquarters' equipment, during a severe financial crisis in Portugal. Still, the vast number of small budget projects is difficult to justify, given the overall context of the CF goals of supporting large-scale infrastructure projects.

Again, the lack of a clear territorial development policy by the successive Portuguese governments, in the last decades, contributed to the lack of an integrated territorial development approach, which is evidenced by the excessive concentration of EU investments on road construction. Also, the long tradition of centralized governance, with no elected regional level (with the exception of the two Archipelagos) hampered a better articulation of developmental policies, at the different administrative levels. Here, the CF ended up as another instrument to finance selected projects that could resolve specific territorial development bottlenecks, despite the fact that the ERDF and the CF were better integrated during the EU Cohesion Policy programming cycle from 2007-2013.

However, in our view, in the 2014-2020 cycle, the CF should focus more on the railway and airports' infrastructure endowments (transport domain), in

58 E. Medeiros *Territorial Cohesion: An European Concept* (2016) *European Journal of Spatial Development*, 60. Available at <[http://www.nordregio.se/Global/EJSD/Refereed%20articles/Refereed\\_60.pdf](http://www.nordregio.se/Global/EJSD/Refereed%20articles/Refereed_60.pdf)>. Online publication date: April 2016.

view with the measures suggested by the existing EU and National Strategic Guidelines. Also, a larger share of the total funds should be allocated to the risk prevention measures in order to better prepare the Portuguese territories for the expected consequences of the rising global temperatures.

Finally, with the provided analysis we intend to fill a gap in the available literature on the impacts of

the CF in a specific EU Member State, since most of the existing analyses shows a tendency to have a broader focus on the impact of the structural and cohesion funds altogether. Also, we expect further developments on theoretical models, which can shed more light on the relevance, efficiency and effectiveness of the CF investments within the EU territory, in the near future.



# Annex

## The EU Cohesion Fund and Spatial Planning Strategies in Transport and Risk Prevention: Portugal (1995-2013)

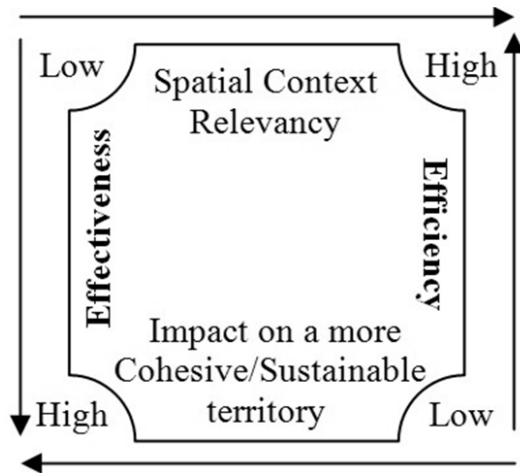
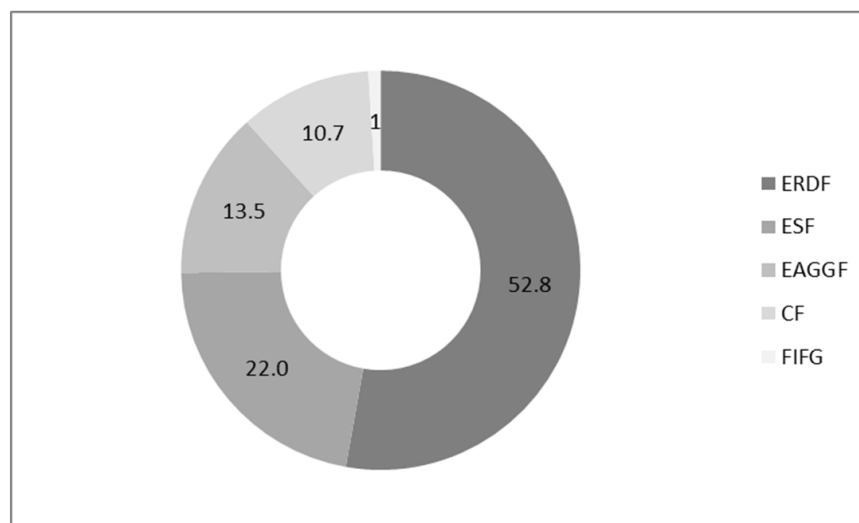


Figure 1: Cohesion Fund evaluation parameters  
 Source: Authors' own elaboration.



Note: ERDF - European Regional Development Fund; ESF - European Social Fund; EAGGF - European Agricultural Guidance and Guarantee Fund; CF - Cohesion Fund; FIFG - Financial Instrument for Fisheries Guidance

Figure 2: EU Cohesion Policy Funds distribution in Portugal (%) – 1986-2013  
 Source: Data (Mateus, 2013) – Author’s compilation.

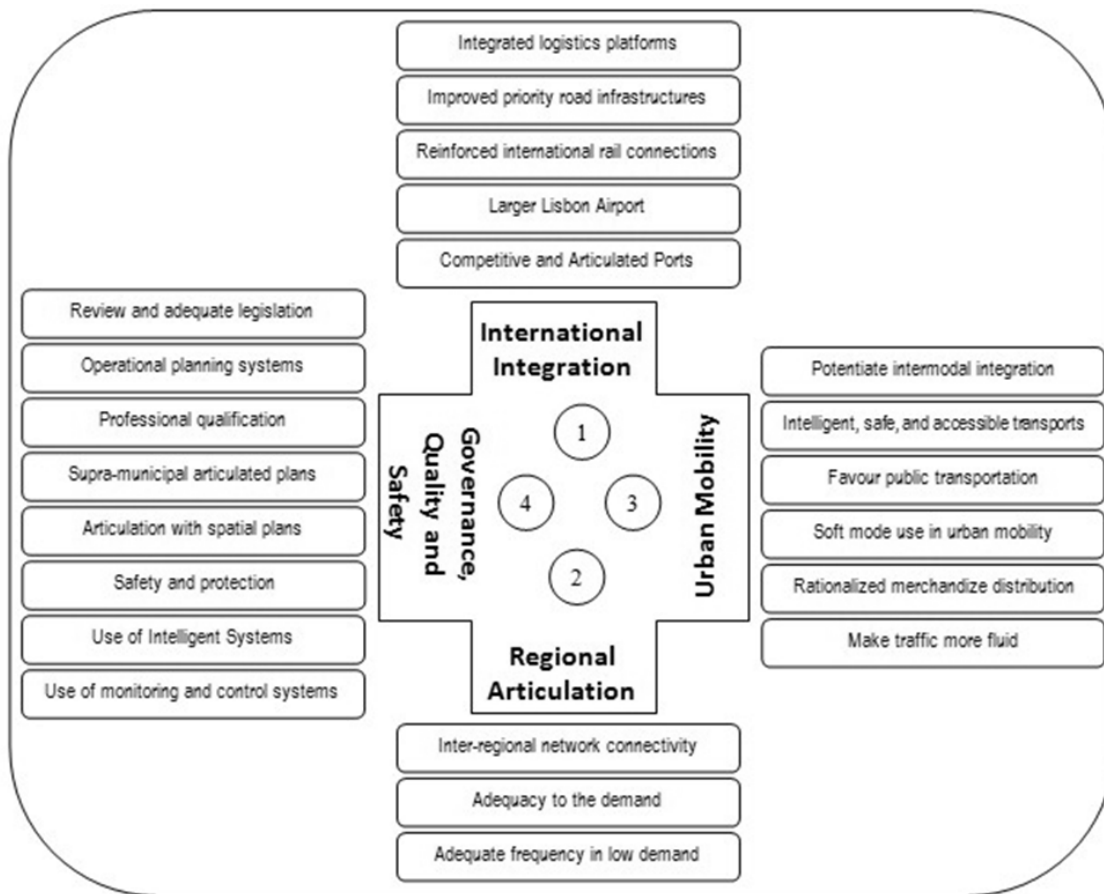


Figure 3: Portuguese Transport Strategic Plan specific goals and operational objectives  
 Source: Data (MAOTDR, 2009) – Author’s compilation, translation and arrangement.

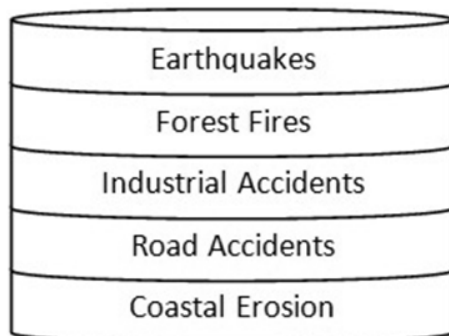


Figure 4: Risk Prevention Components in the Portuguese Strategy for Sustainable Development  
 Source: Data (MCOTA, 2002) – Author’s compilation, translation and arrangement.



Figure 5: National Road Plan 2000 (Principal and complementary itineraries)

Source: Adapted from DGOTDU, 2007.



Figure 6: Railroad network, 2004  
 Source: Adapted from REFER, 2012.

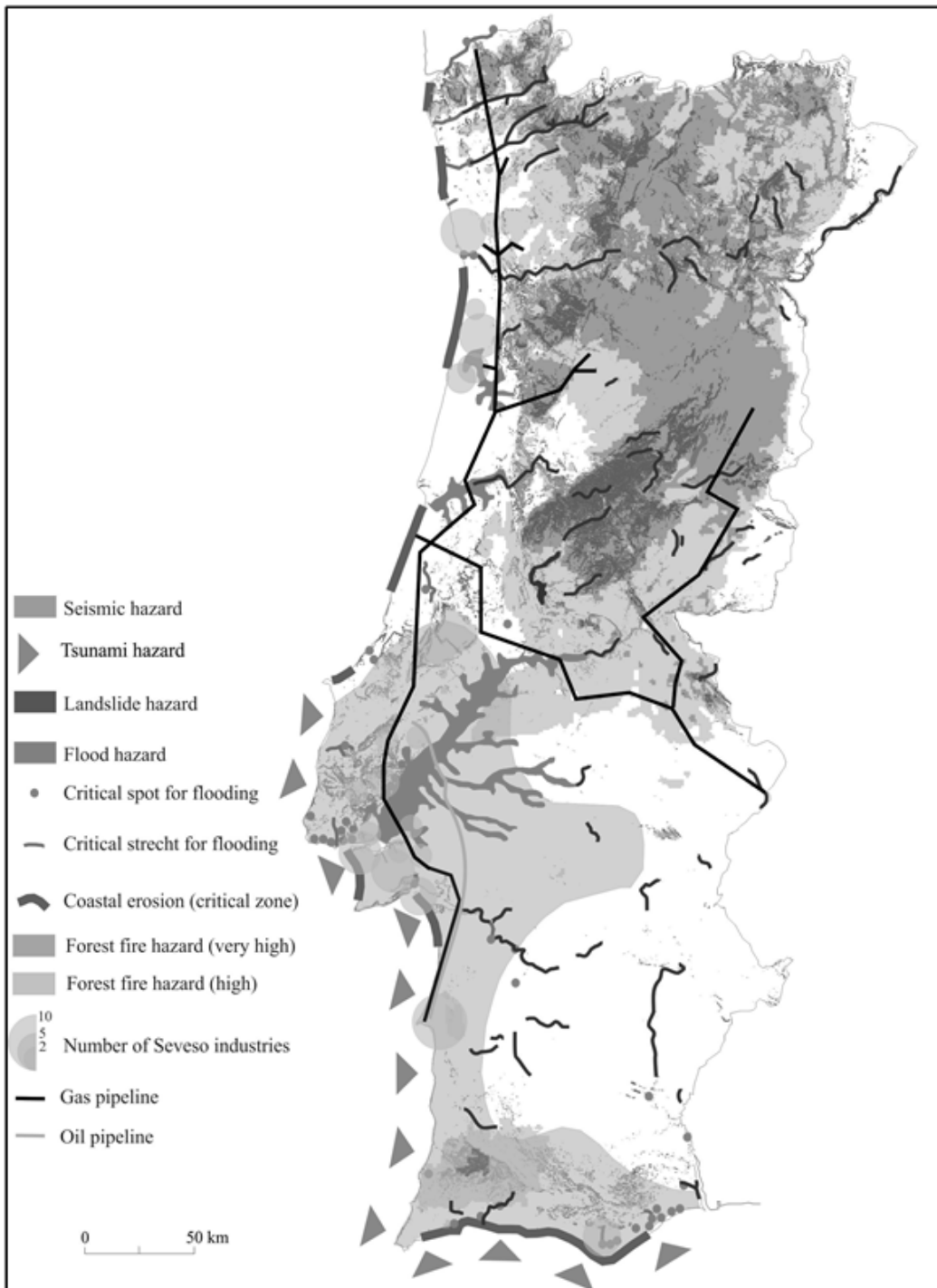


Figure 7: Natural, Technological and Environmental Hazards in Portugal mainland  
Source: Adapted from Zêzere et al., 2007.



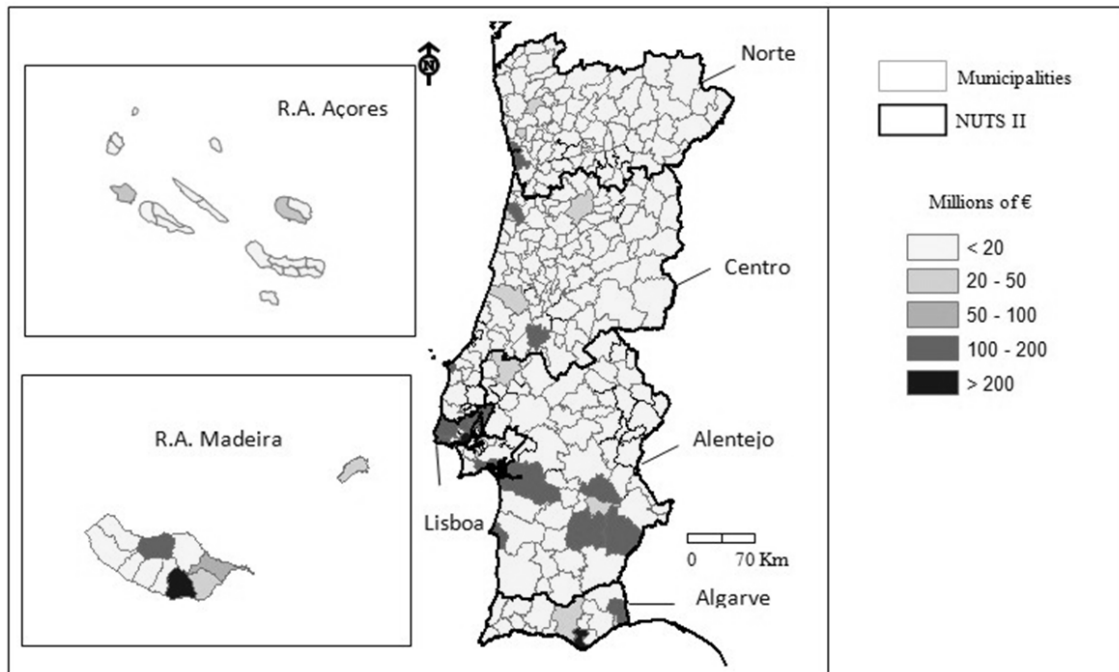


Figure 8: Cohesion Fund financial execution per Portuguese Municipalities (€) – per main domain – 1995-2013

Source: Data (IFDR Database) – Author’s compilation.

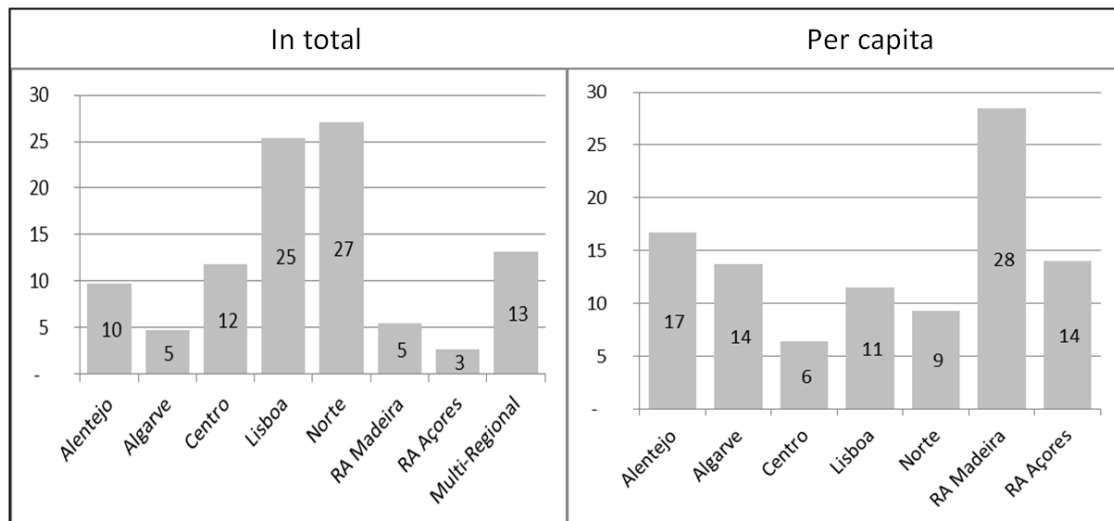


Figure 9: Cohesion Fund financial execution per Portuguese NUTS II (%) – 1995-2013

Source: Data (IFDR Database) – Author’s compilation.

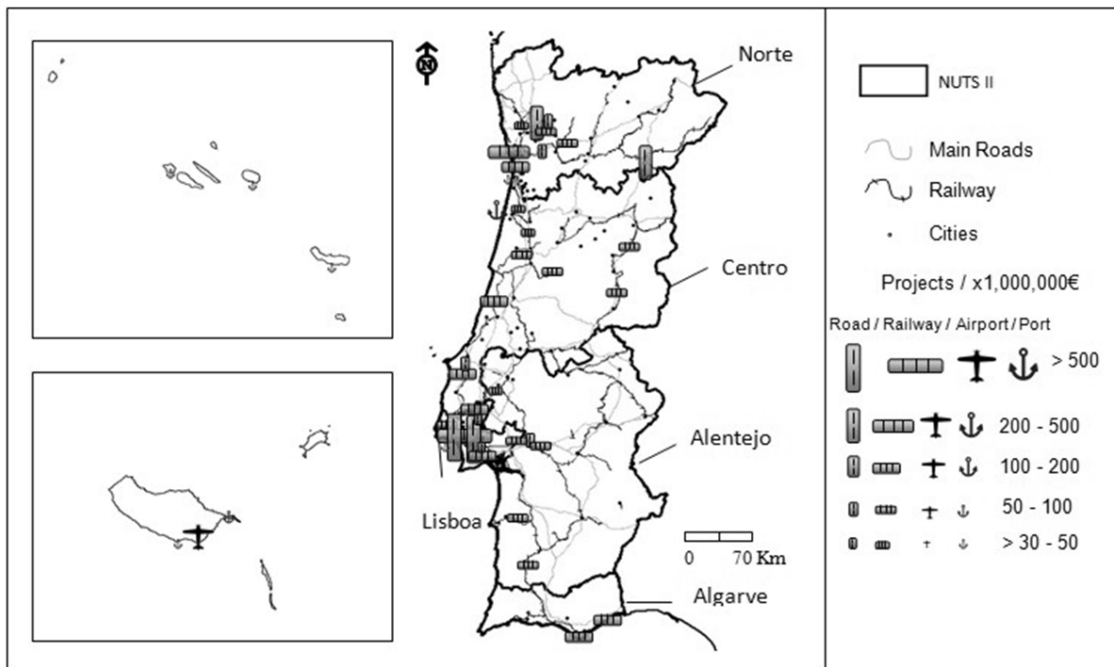


Figure 10: Cohesion Fund flagship transport projects – 1995-2013

Source: Data (IFDR Database) – Author’s compilation.

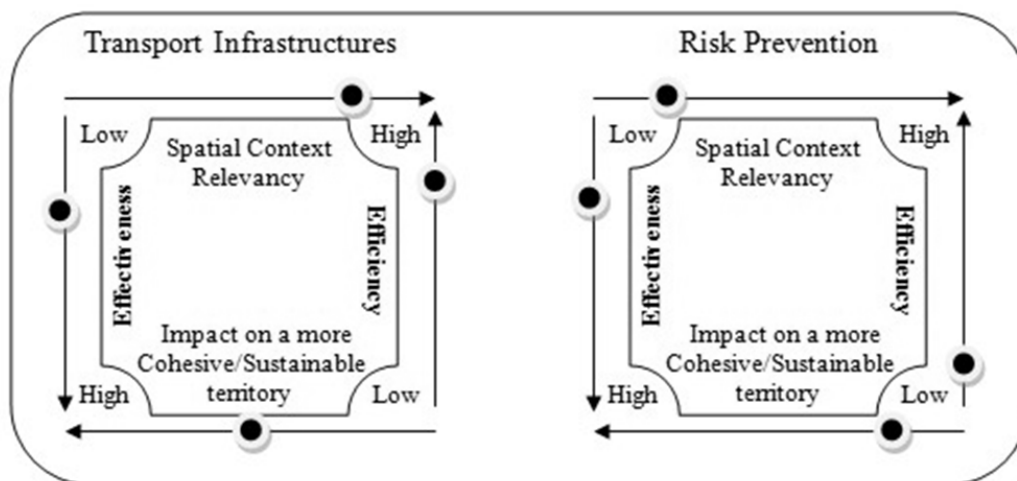


Figure 12: Cohesion Fund evaluation parameters: Portugal 1993-2013

Source: Authors' own elaboration.



Figure 11: Relative distribution of Cohesion Funds allocated to risk projects per Portuguese municipalities – 1993-2013 (standard deviation)  
 Source: Data (IFDR Database) – Author’s compilation.

Transports	€	%
Regional Articulation	3,800,227,151 €	69.03
International Integration	1,074,682,658 €	19.52
Urban Mobility	630,189,199 €	11.45
<b>Total</b>	<b>5,505,162,408 €</b>	<b>100</b>
Risk Prevention	€	%
Coastal erosion (structural measures)	207,508,058 €	46.56
Coastal erosion (non-structural measures)	38,473,150 €	8.63
Flash floods (structural measures)	11,171,779 €	2.51
Civil Protection and Fire Department infrastructure and equipment	160,506,798 €	36.01
Other (risk assessment, risk management, risk communication)	28,020,243 €	6.29
<b>Total</b>	<b>445,680,028 €</b>	<b>100</b>

Table 1: Cohesion Fund in transport and risk prevention strategic components (1995-2013)  
Source: Data (IFDR and QREN Observatory Databases) – Author's compilation.

Theme	€	%
Drinking water (collection, distribution, treatment)	3.015.340.850 €	25
Wastewater (treatment)	1.331.827.111 €	11
Renewable energy	115.139.565 €	1
Risk Prevention	445.680.028 €	4
Environmental Recovery	183.474.259 €	2
Urban and Industrial Waste	1.374.923.683 €	11
<b>Environment</b>	<b>6.466.385.496 €</b>	<b>54</b>
Airports	287.147.866 €	2
Railway	1.870.190.641 €	16
Ports	582.488.700 €	5
Roads	2.225.388.540 €	19
Urban Transports	539.946.662 €	5
<b>Transports</b>	<b>5.505.162.409 €</b>	<b>46</b>
<b>Preparation, Execution and Evaluation</b>	<b>6.494.200 €</b>	<b>1</b>
<b>TOTAL</b>	<b>11.978.042.106 €</b>	<b>100</b>

Table 2a: Cohesion Fund in Portugal – Financial execution per investment policy sector and area – (1995-2013)  
Source: Data (IFDR Database) – Author's compilation.

Flagship Projects – Large Scale Investment		
New Tagus Bridge (Alcochete-Lisbon)	Transports	603.170.195,59 €
Northeast – Highway	Transports	318.885.444,00 €
Funchal Airport	Transports	269.841.000,00 €
External Lisbon Circular - Highway - A9 - CREL	Transports	215.176.200,61 €
Braga - Ponte de Lima Highway - EN303 - A3	Transports	210.053.486,72 €
Urban Residues Treatment - North of Portugal	Environment	184.890.360,87 €
Ermidas-Faro – Highway	Transports	168.972.689,01 €
Vila Franca-Santarém - Railway	Transports	158.909.148,66 €
Lisbon Metro - Oriente-Airport	Transports	152.093.036,11 €
Entroncamento-Albergaria - Railway	Transports	142.084.956,00 €
Oporto south - Water supply	Environment	131.932.369,00 €
Lisbon Metro: Baixa - Chiado-Santa Apolónia	Transports	126.383.400,00 €
Buraca/Pontinha - Highway - CRIL	Transports	126.121.372,00 €
Braço Prata-Alhandra - Railway	Transports	123.446.597,00 €
Lisbon Metro - S. Sebastião-Alameda-EXPO	Transports	119.109.236,01 €
Solid Waste Incineration Station - LIPOR II	Environment	118.406.226,70 €
Solid waste treatment - Litoral Centro	Environment	114.643.813,00 €
Oporto Metro - Estádio do Dragão-Venda Nova	Transports	114.086.200,00 €
Quintans-Ovar - Railway	Transports	111.162.316,89 €
P. Novo-Grândola- Sines - Railway	Transports	109.939.082,51 €
Water treatment - Águas do Ave	Environment	106.990.664,00 €
Solid waste treatment - Madeira	Environment	106.625.726,00 €
Odeleite-Beliche - Dam	Environment	101.679.860,29 €
Coima-Pinhal Novo - Railway	Transports	100.872.667,93 €

Table 2b: Cohesion Fund in Portugal – Financial execution per investment policy sector and area – (1995-2013)

Source: Data (IFDR Database) – Author's compilation.