

GREEN INFRASTRUCTURE AND SPATIAL PLANNING: A LEGAL FRAMEWORK

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Abstract. In Romania, the uncontrolled expansion of built-up areas contributes to the loss of biodiversity and fragmentation of land, and appropriate policy instruments must be developed or improved in order to avoid this situation. Green infrastructure can prevent the negative effects of development and therefore it should be included in territorial development plans and policies. However, although the importance of green infrastructure is widely recognized, putting in practice these policies is still difficult. The article assumes that due to the different scales of application, green infrastructure must and can be applied in spatial planning policies and in other related public policies. The way in which green infrastructure and its associated aspects (such as connectivity, ecological corridors, benefits, measures, planning) are referred to in the Romanian legislative framework is analysed, in order to find which political tools promote their implementation. The method consists in reviewing the most important national policy documents and identifying their references to 7 keywords that are related to the establishment and management of green infrastructures. To the obtained results were added the conclusions drawn from workshops in which representatives of decision-makers in the fields of environment and spatial planning debated on this issue. The final results confirm that there are currently many legislative instruments promoting green infrastructure in Romania, but these are not enough, requiring a multidisciplinary approach for their improvement. A favourable situation is that of ecological corridors, components of green infrastructure, for which steps have already been taken, including at political level, and the environmental legislative framework is going to be accordingly adapted. Thus, after the legal identification of ecological corridors, they are going to be implemented into territorial planning documents at different scales.

Keywords: policy tools, biodiversity, spatial planning, ecological corridors, benefits.

Rezumat. Infrastructura verde și planificarea spațială: un cadru legal. Extinderea necontrolată a zonelor construite din România provoacă pierderea biodiversității și fragmentarea terenurilor, ceea ce face necesare instrumente politice adecvate care să împiedice acest lucru. Infrastructura verde poate să atenueze efectele negative ale dezvoltării, și de aceea ar trebui să devină parte componentă a planurilor și politicilor de dezvoltare teritorială. Dar, deși teoretic s-a înțeles importanța infrastructurilor verzi, este dificilă punerea în practică a prevederilor politice referitoare la acestea. Ipoteza de la care s-a plecat în articolul de față este că datorită scării diferite de aplicare, infrastructura verde trebuie și poate fi inclusă în planificarea spațială și în alte politici publice de dezvoltare a teritoriului. Articolul analizează modul în care infrastructurile ecologice și aspectele legate de acestea (conectivitate, coridoare ecologice, beneficii, măsuri, planificare) sunt prezente în cadrul legislativ românesc și cercetează instrumentele politice care le promovează implementarea. Metoda constă în analiza celor mai importante politici și instrumente politice pe plan național și identificarea gradului în care acestea fac referire la 7 cuvinte-cheie, care sunt incluse în definiția infrastructurii verde. Rezultatelor obținute li s-au adăugat concluziile desprinse în urma unor întâlniri pe această temă cu decidenți din domeniile mediu și planificare a teritoriului. Rezultatele confirmă faptul că în prezent există numeroase instrumente legislative în România care promovează infrastructura verde, dar care însă nu sunt suficiente, fiind necesară o abordare multidisciplinară pentru a le îmbunătăți. O situație favorabilă este cea a uneia din componentele infrastructurii verzi - coridoarele ecologice - pentru care deja s-au făcut pași înainte, inclusiv la nivel politic, cadrul legislativ din domeniul mediului urmând a fi modificat în consecință. Ulterior, după identificarea legală a coridoarelor ecologice, acestea urmează să fie implementate, la scări diferite, în documentațiile de planificare a teritoriului.

Cuvinte cheie: instrumente politice, biodiversitate, planificare teritorială, coridoare ecologice, beneficii.

INTRODUCTION

In Romania, most territorial planning documents consider the natural environment as an important resource for a sustainable territorial development. Unfortunately, the development of localities over the last 30 years has accelerated the uncontrolled expansion of their built-up areas, clear and adequate policy tools being necessary to prevent the urban sprawl, and also to achieve an effective governance (***. GVERNUL ROMÂNIEI, 2020). In the field of urbanism and spatial planning there is legislation that could theoretically prevent this, but very often it is not respected, due to unclear or contradictory provisions. Land fragmentation, biodiversity loss and ecosystem degradation could be prevented or reduced by including green infrastructure considerations in planning and decision-making processes, the connection between spatial planning and green infrastructure being possible due to its spatial characteristics. The importance of analysing the Romanian legislative framework that refers directly or indirectly to the green infrastructure and its associated issues is based on the fact that green infrastructure should become “a standard component of spatial planning and development” - as provided by the EU Strategy on Green Infrastructure (***. EUROPEAN COMMISSION, 2013), which is already promoted and integrated into most policy areas at European level.

The concept of green infrastructure. Our study is necessary because, by comparison with the situation at European level, it is observed that the concept was introduced into EU policies even before 2010, when it was already concluded that green infrastructure is important both theoretically and practically. The official definition (***. EUROPEAN COMMISSION, 2013) of green (or ecological) infrastructures refers to their planning aspect, being seen as “strategically planned networks” in terrestrial and marine areas, in urban and rural territories, describing their component elements (seen as “ecosystems”) and the provided services.

The name *green infrastructure* began to be used in the '90s, but the idea is not new, developing rapidly internationally. Its definitions are numerous and differ both in theory and practice. They depend on the authors approaching the concept (MELL, 2010) and on the sector and context in which it applies (WRIGHT, 2011). Thus, environmentalists (BENEDICT & MAHON, 2002) perceive it through its ecological and biological components, landscaping specialists in terms of policy implementation (AHERN, 1995), while specialists emphasize the ability of green infrastructure to provide recreation and focus on the benefits of creating such infrastructure (KLEIBER et al., 2002). These definitions also reflect the ability of applying the concept to all scales - local, regional, national to meet different needs. Green infrastructure can help in the long-term planning and management of green spaces and corridors, maintaining and promoting the landscape integrity and connectivity (MELL, 2010), a multifunctional resource that must be properly designed and managed (***. NATURAL ENGLAND, 2010).

In literature, the concept of green infrastructure operates with notions such as connectivity and accessibility, in the idea that it provides benefits, supports ecological, social and economic functions and promotes the multifunctionality of landscapes (MELL, 2016). The concept is put into practice by providing low carbon solutions, a sustainable transport, an improvement of the quality of living space and of health and well-being, resulting from applying ideas of “connectivity”, “multifunctionality” and “green”. Although the concept is quite broad and unclear, it has reached a consensus, that green infrastructure is an opportunity to obtain social, economic and environmental benefits (WRIGHT, 2011).

Since the 1990s, several definitions of green infrastructure have been tried and various components of it have been proposed. In the article “The origins of green infrastructure connectivity” (POPESCU & PETRIȘOR, 2020) we presented a short chronology of existing definitions, based on the literature and official reports. The definition of green infrastructure has evolved from a natural life support system (BENEDICT & MAHON, 2002; WILLIAMSON, 2003), an ecological framework for sustainable development (BENEDICT & MAHON, 2002), a resilient landscape (MELL, 2010) and a management approach (BENEDICT & MAHON, 2002) - to an emerging concept of planning and design (AHERN, 2007), a planned network strategically created (***. NATURAL ENGLAND, 2010; ***. EUROPEAN COMMISSION, 2013). Some definitions have emphasized the role of green infrastructure in conserving biodiversity, through its role in connecting ecological networks; other definitions have emphasized their role in providing ecosystem services, or the benefits they provide to communities in terms of improving health and quality of life. Last but not least, the emphasis was on the role of green infrastructure as a strategic tool in land use planning and conservation (BENEDICT & MAHON, 2012).

Regarding the components of green infrastructure, most authors refer to high-quality green spaces (***. NATURAL ENGLAND, 2010) but most often to a “network” or “interconnected network” of natural elements and green spaces (BENEDICT & MAHON, 2002; AHERN, 2007; MELL, 2016), some of them protected (WILLIAMSON, 2003), and, very often, to a “planned network” of green spaces (BENEDICT & MAHON, 2002), and referring to the “multifunctionality” of open spaces (DAVIES et al., 2006). Finally, the European Commission also concludes that green infrastructure consists of natural, semi-natural areas, and other elements of the terrestrial or marine environment (***. EUROPEAN COMMISSION, 2013).

The premises: green infrastructure, spatial planning and policies. Due to its spatial elements and the scales to which it can be applied, green infrastructure must be integrated into spatial planning. This has already been done, not only at urban level - especially in American cities and in England, but also in Europe – but also at regional level, as is the case in the mountainous regions of Europe. Spatial planning, in turn, is closely linked to other public land development policies, such as those related to land and soil (including biodiversity), climate change or water management. That is why green infrastructure should be taken into account in spatial planning processes at all levels (local/regional/national), with a focus on connectivity, multifunctionality and the provision of ecosystem services and should be included in strategies, plans and programs of territorial development through appropriate policy instruments.

The inclusion of the concept in spatial planning is necessary for a long-term protection of all the elements of green infrastructure. An issue that was observed concerns the difficult way in which policies can apply green infrastructures in practice, because, compared to the green infrastructure theory, which focuses on the environment, policies can be dominated by socio-economic interests. The data show that so far, if the theoretical importance of the term has been generally understood, its application in practice or in politics has been more difficult (this is also the case in Romania).

In the present research, we started from the premise that green infrastructure is a multifunctional resource, which provides ecosystem services and social, economic and environmental benefits to communities. The research also considers that green infrastructure contains the following elements: a) protected natural areas, large terrestrial areas/areas of natural and recreational value, forests, streams and water bodies, urban green elements that can be natural (parks, gardens, agricultural land, green spaces) or semi-natural (green roofs/ facades/fences, green areas of water management), and b) connectivity elements, either natural (ecological corridors, vegetation along the waters, roads, green belts/corridors, hedges, tree alleys) or artificial (ecoducts, etc.). In addition, we started from the idea that through strategic planning, these elements can be interconnected and included in a network, promoting landscape connectivity, conservation and protection of biodiversity and natural habitats.

The European context. At European level, the main policy instrument dealing with green infrastructure is the **European Union's Strategy on Green Infrastructure** (***. EUROPEAN COMMISSION, 2013), which

demonstrated the benefits of creating such infrastructure in Europe's urban and rural areas. The green/ecological infrastructure was mentioned in 2011 in the **EU's Biodiversity Strategy** (***. EUROPEAN COMMISSION, 2011), which has provided at Objective 2 the development of a special strategy dedicated to this type of infrastructure and which will promote its creation and use by 2020. The aim of the EU's Strategy on Green Infrastructure is to restore the health of ecosystems and ensure the connectivity of natural areas, not only for species, allowing them moving along their habitats but also to provide different ecosystem services and other benefits in terms of biodiversity, environment, economy and society. A key element of the Strategy is the promotion and integration of green infrastructure in many policy areas, such as regional and cohesion policies, the environment and climate change, natural disaster risk management, the common agricultural policy and urban planning policies.

With regard to spatial planning, perhaps the most important European Commission document on the perspective of spatial development in Europe (**ESDP**) (***. COMMISSION OF EUROPEAN COMMUNITIES, 1999) does not explicitly use the term "green infrastructure", but refers to the European Ecological Network Natura 2000 (seen as an integrated biological network) and to the connections and corridors between protected areas. Thus, spatial development must be in harmony with nature conservation by preserving protected areas and other ecologically valuable areas, which provide important services to society as a whole (Art. 139). Among the policy options, the ESDP envisages the continued development of the European Ecological Network Natura 2000 which must include the necessary links between natural sites and protected areas of regional, national, transnational and European importance, integrating biodiversity considerations into sectoral policies and developing integrated spatial development strategies.

Instead, the **Territorial Agenda of the European Union 2020** (***. COUNCIL OF EUROPE, 2011) refers (Art. 37) to the integration of ecological systems and protected natural areas in ecological infrastructure networks at all levels, drawing attention to the fragmentation of natural habitats and ecological corridors (Art. 23). Green infrastructure is frequently mentioned in the **2030 Agenda for Sustainable Development** (***. UNGA, 2015), which in Objective 15 (Life on Earth) refers to the need to protect terrestrial and freshwater ecosystems, to stop soil degradation, natural habitats and biodiversity loss, and the need to conserve mountain ecosystems and their biodiversity, with an emphasis on restoration and sustainability. It is again emphasized that green infrastructure also integrates other objectives regarding underwater life, health and well-being, clean water, sustainable cities and communities, and climate action. It states (as in the ESDP) that policies aimed at planning, implementing, managing and maintaining green infrastructure must be coordinated between territories and at territorial levels to ensure the connectivity of regional green infrastructure and cross-border continuity.

The recent **2030 Territorial Agenda** (***. COUNCIL OF EUROPE, 2020) supports the development of nature-based solutions, as well as of green and blue infrastructure networks linking ecosystems and protected areas, in policies such as land use planning/spatial development (Art. 54), showing that green infrastructure should be implemented especially for the prevention of urban sprawl (Art. 55). The Territorial Agenda refers to climate change and to the necessary measures to prevent negative issues such as biodiversity loss and land consumption, urban sprawl, reduction of open spaces and biodiversity. And finally, at urban level, green infrastructure is promoted in the **EU Urban Agenda** (***. EUROPEAN COMMISSION, 2017) which aims to improve the quality of life in urban areas, among the priorities being mentioned adaptation to climate change, sustainable land use and nature-based solutions. One of the 12 priorities aimed at adapting to climate change is applying green infrastructure solutions.

The New Urban Agenda (***. UN HABITAT, 2016) also talks about ecosystem-based solutions, ecosystem conservation, green public spaces in cities and adaptation to climate change.

MATERIAL AND METHODS

In the present research, the legal framework in Romania was analysed, in order to establish its relation with the planning and development of the territory. Thus, the main legislative documents in Romania that refer - explicitly or implicitly - to green/ecological infrastructure were reviewed. We focused on legislation on biodiversity, water, soil, forests, environmental protection, climate change, environmental impact assessment, conventions to which Romania is a member in the areas of interest, sustainable development, spatial planning (construction, urbanism and spatial planning) as well as on several programs that refer to this topic.

The method we used was the in-depth analysis of a number of 39 political documents (laws, strategies, policies) and which are presented in the lines of Table no. 1. To the conclusions of this study were added the results of several Workshops that took place during 2020, attended by specialists in the field of environment and spatial planning, representatives of the Ministry of Environment, Ministry of Transport and Ministry of Public Works, Development and Administration, as well as specialists from universities and associations working in spatial planning and environmental protection domains. The workshops took place within the ConnectGreen project: "Restoring and managing ecological corridors in mountains as the green infrastructure in the Danube Basin", financed by the Danube Transnational cooperation Program between 2018 and 2021, and coordinated by WWF Romania and in which INCD URBAN-INCERC is partner.

In the documents analysed and summarized in Table no. 1, we identified a number of seven issues / directions (the table columns, grouped by keywords) related to green infrastructure, as it is officially defined by the European Commission (***. EUROPEAN COMMISSION, 2013): "A strategically planned network of natural and semi-natural

areas, as well as other environmental elements, which is designed and managed to provide a wide range of ecosystem services. It integrates green spaces (or aquatic, in the case of such ecosystems) and other physical elements of terrestrial (including coastal) and marine areas. On land, ecological infrastructures are present in both rural and urban areas”.

The first column of the table contains the analyzed legislative and strategic framework (documents), and the following columns reflect the presence of keywords. Apart from column a, which refers to the explicit presence of the term “green/ecological infrastructure” in the analyzed documents, the following columns represent the key words after which the analysis was made, answering some questions related to the characteristics of green infrastructure. Thus, the codes refer to: a: “Green/ecological infrastructure” (explicit reference) (*who?*); b: Network, connectivity, continuity, ecological coherence (*what are the operating needs of green infrastructure?*); c: Biodiversity elements, natural/semi-natural areas, terrestrial and aquatic habitats (*what is green infrastructure made of?*), of which: d: Ecological corridors; e: Benefits, ecosystem services, multifunctionality (*what does green infrastructure offer?*); f: Environmental challenges / threats: fragmentation, climate change, floods, etc. (*what issues is green infrastructure addressing?*); g: Conservation / protection / restoration measures, management, nature-based solutions (*what measures are needed to reduce / mitigate the challenges of the present?*); h: Strategic / spatial planning, urbanism, land use planning, regional development (*how can the challenges of the present be reduced / mitigated?*).

The following legal documents were consulted:

1. Government Emergency Ordinance no. 57/2007 on the regime of protected natural areas, conservation of natural habitats, wild flora and fauna and Law 49/2011 for the approval of the Government Emergency Ordinance no. 57/2007
2. National Strategy and Action Plan for Biodiversity Conservation 2014-2020
3. Government Decision no. 230/2003 on the delimitation of biosphere reserves, national parks and natural parks and the establishment of their administrations
4. Government Decision no. 2151/2004 regarding the establishment of the protected natural area regime for new areas, Government Decision no. 1143/2007 regarding the establishment of new protected natural areas, Government Decision no. 1217/2010 on the establishment of the protected natural area regime for the Cefa Natural Park
5. Government Decision no. 1284/2007 on the declaration of special protection areas as an integral part of the European ecological network Natura 2000 in Romania and the Government Decision no. 971/2011 for the amendment and completion of the Government Decision no. 1284/2007
6. Order no. 1964/2007 on the establishment of the protected natural area regime of sites of community importance, as an integral part of the European ecological network Natura 2000 in Romania
7. Order no. 304/2018 regarding the approval of the Guide for the elaboration of management plans for protected natural areas
8. Law no. 107/1996 - Water Law, with subsequent amendments and completions
9. Government Decision no. 846/2010 for the approval of the National Flood Risk Management Strategy
10. Law no. 138/2004 on land improvements, with subsequent amendments and completions (republished)
11. Government Decision no. 739/2016 for the approval of the National Strategy on Climate Change and Economic Growth based on carbon emissions for the period 2016-2020 and the National Action Plan for the implementation of the Strategy
12. National Forestry Strategy 2018-2027
13. Law no. 292/2018 on assessing the impact of certain public and private projects on the environment
14. Government Decision no. 1076/2004 on establishing the procedure for carrying out the environmental assessment for plans and programs, with subsequent amendments and completions
15. Law no. 265/2006 for the approval of the Emergency Ordinance of the Government of Romania no. 195/2005 on environmental protection, with previous amendments and modifications
16. Law No. 58/1994 on the ratification of the Convention on Biological Diversity signed in Rio de Janeiro on 5 June 1992
17. Law no. 13/1998 for the accession of Romania to the Convention on the Conservation of Migratory Species of Wild Animals, adopted in Bonn on June 23, 1979
18. Law no. 13/1993 for the accession of Romania to the Convention on the Conservation of European Wildlife and Natural Habitats, adopted in Bern on September 19, 1979
19. Law no. 389/2006 for the ratification of the Framework Convention for the Protection and Sustainable Development of the Carpathians, adopted in Kiev on 22 May 2003
20. Law no. 137/2010 for the ratification of the Protocol on the Conservation and Sustainable Use of Biological Diversity and Landscape Diversity, adopted and signed in Bucharest on June 19, 2008, at the Framework Convention for the Protection and Sustainable Development of the Carpathians
21. Law no. 76/2013 for the ratification of the Protocol on sustainable forest management, to the Framework Convention on the protection and sustainable development of the Carpathians

22. Protocol of 27 May 2011 on sustainable tourism to the Framework Convention for the Protection and Sustainable Development of the Carpathians, Bratislava May 2011
23. National Development Plan 2007-2013
24. The 2030 Agenda for Sustainable Development
25. Government Decision no. 877/2018 on the adoption of the National Strategy for Sustainable Development of Romania 2030
26. Law no. 5/2000 (updated) on the approval of the National Spatial Plan - Section III - Protected Areas
27. Law no. 350/2001 on spatial planning and urbanism, with subsequent amendments and completions
28. Order no. 233/2016 for the approval of the Norms of the methodology for applying Law no. 350/2001 on spatial planning and urbanism and on the elaboration and updating of urban planning documents, with subsequent amendments and completions
29. Guide on the elaboration methodology and the framework content of the general urban plan
30. Government Decision no. 525/1996 (republished) for the approval of the General Regulation of urbanism, with modifications and completions
31. Order no. 176 / N of 2000 for the approval of the technical regulation “Guide regarding the elaboration methodology and the framework content of the zonal urban plan”
32. Order no. 37 / N / of 2000 on the approval of the technical regulation “Guide on the elaboration methodology and the framework content of the detailed urban plan”
33. Government Decision no. 382/2003 for the approval of the Methodological Norms regarding the minimum content requirements of the spatial and urban planning documentation for the natural risk areas
34. Law no. 50/1991 regarding the authorization of the execution of construction works, with the subsequent modifications and completions
35. Law no. 24/2007 (republished) on the regulation and administration of green spaces in the built-up areas of localities, with subsequent amendments and completions
36. Large Infrastructure Operational Program (POIM) 2014-2020
37. National Rural Development Program (PNDR) 2014-2020
38. The Prioritized Action Framework (PAF) for Natura 2000 for the period 2021-2027
39. Romania's Territorial Development Strategy

RESULTS

Using the method described above, the following results were obtained (Table 1).

Table 1. National policies and instruments referring to green infrastructure.

Document	Keywords							
	a	b	c	d	e	f	g	h
1.		Yes	Yes	Yes		Yes	Yes	Yes
2.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3.			Yes			Yes		Yes
4.			Yes			Yes		Yes
5.		Yes	Yes			Yes		
6.		Yes	Yes			Yes		Yes
7.			Yes		Yes	Yes		Yes
8.			Yes			Yes	Yes	Yes
9.			Yes			Yes	Yes	Yes
10.			Yes			Yes	Yes	
11.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
12.			Yes		Yes	Yes	Yes	
13.			Yes			Yes	Yes	Yes
14.						Yes		Yes
15.		Yes	Yes			Yes	Yes	Yes
16.			Yes		Yes	Yes		
17.		Yes	Yes			Yes		
18.			Yes			Yes		
19.		Yes	Yes		Yes	Yes		Yes
20.		Yes	Yes	Yes				
21.		Yes	Yes			Yes		
22.		Yes	Yes		Yes	Yes		
23.			Yes	Yes		Yes	Yes	Yes
24.	Yes	Yes	Yes			Yes	Yes	
25.	Yes		Yes			Yes	Yes	Yes
26.		Yes	Yes			Yes		Yes
27.			Yes			Yes		
28.			Yes			Yes		Yes
29.			Yes			Yes	Yes	Yes

Document	Keywords							
	a	b	c	d	e	f	g	h
30.			Yes			Yes		Yes
31.			Yes			Yes		Yes
32.			Yes			Yes		Yes
33.			Yes			Yes	Yes	Yes
34.			Yes			Yes		Yes
35.		Yes	Yes			Yes	Yes	Yes
36.	Yes		Yes		Yes	Yes	Yes	
37.			Yes			Yes		
38.	Yes	Yes	Yes			Yes	Yes	Yes
39.	Yes	Yes	Yes	Yes		Yes	Yes	Yes

DISCUSSIONS

The results confirm the hypothesis from which we started, namely the fact that green infrastructure must and can be integrated into spatial planning, and there are already legislative premises for such an approach.

Table 1 shows that all keywords were found only in two Romanian legislative provisions: in the National Strategy and Action Plan for Biodiversity Conservation 2014-2020 (approved by GD no. 1081/2013) and in the National Strategy on climate change and carbon-based economic growth for the period 2016-2020 and its National Action Plan (GD no. 739/2016). The term “green/ecological” infrastructure appears **explicitly** in a small number of documents, being mentioned since 2013, in Strategies and Plans on biodiversity conservation, climate change and sustainable development, as well as in the Large Infrastructure Operational Program 2014-2020 (POIM), which in turn refers to the measures provided for in the Priority Action Framework for Natura 2000. The latter, updated for the period 2021-2027 often refers to the green infrastructure. It is important to mention that one of the goals of the National Strategy for Sustainable Development of Romania for 2030 is the development of green infrastructure and its services, and even more, Romania will have to act for a “wider ecological infrastructure”.

Analysing the **indirect** approaches to green infrastructure, we have found that all documents are mentioning the various elements composing the green infrastructure (column c), as well as the measures that should be taken in order to conserve, protect or restore these elements of diversity in the terrestrial or aquatic environment (column f).

A larger number of documents (almost 40% of the analysed) mention the defining characteristics of green infrastructure, namely that it operates in network, its connectivity and continuity (column b). As expected, these are documents on biodiversity, climate change, environmental protection, protection and sustainable development of the Carpathians, as well as the National Spatial Plan Section III: Protected Areas. Emphasis is placed on ecological and habitat networks, respectively on the coherence of the European and Carpathian ecological networks.

Among the elements of green infrastructure, the **ecological corridors** occupy an important place and we observed that 15% of the mentioned documents refer to them (column d). Thus, the ecological corridors are explicitly mentioned in official documents on protected natural areas, biodiversity, climate change, the Carpathian Convention but also in the National Development Plan 2007-2013 developed in 2005. These documents contain different definitions of the ecological corridor, which is considered in particular in relation to the presence of wildlife habitats in protected natural areas. There are some references - quite vague - to the way in which ecological corridors are established, to the responsibilities of their designation and of the necessary management measures.

The table also shows that a fairly large number (21%) of the documents refer directly or indirectly to the benefits offered by green infrastructure, being mentioned as ecological benefits, ecosystem services or benefits based on nature.

The largest number of documents (66%) that indirectly refer to green infrastructure are those that refer, in one way or another, to **urban and spatial planning**, at different scales (local/regional/national), as planning tools for the implementation of green infrastructure. Spatial planning legislation makes references to a wide range of areas which in turn is containing independent elements of green infrastructure. Also, in many documents on protected natural areas, reference is made to their takeover in urban and spatial planning, together with the provisions of management plans. Measures for the maintenance of green spaces elements (especially at locality level) are provided both in the Law on Environmental Protection and in the Law on Green Spaces.

We found that **territorial planning** is seen as an important tool for the implementation of green infrastructure, which must be planned, implemented, managed and maintained (the **2030 Agenda for Sustainable Development**) and one of the goals for the year 2030 is the development of green and forestry infrastructures (**Romania's National Strategy for Sustainable Development**). We also found that part of the **investments** in the 2014-2020 financial programming should have been used, inter alia, for the development of green infrastructure, including in territories outside the Natura 2000 network for the purpose of biodiversity conservation (**National Biodiversity Conservation Strategy**). Also, that investments in green infrastructure are a priority and the development of transport networks will take into account green infrastructure (**POIM**). Actions and investments in the implementation of innovative and economically efficient solutions for the development of green infrastructures have been provided in mountain areas, including their use to ensure the connectivity of wild animals' populations or migration corridors (**National Action Plan on Climate Change 2016-2020**).

There are no published papers with a similar methodology, which makes this study an innovative approach. Of course, the study has its limitations. The choice of national policy documents, although based on a rigorous analysis of the situation at European level, can be supplemented with new documents of interest, since these results reflect the current situation, from the beginning of 2021. The authors also consider that it would be necessary, for a better image, to continue the analysis of the same documents from other perspectives, such as their favourability in terms of the implementation of green infrastructure in spatial planning or the degree to which the responsibilities for the implementation and management of green infrastructures in Romania are specified. Even so, the study provides an image of where we are at the moment, especially compared to the EU situation regarding the inclusion of green infrastructure issues in official documents, and highlights the opportunity to promote this issue in existing instruments from the national legislation in the field of urbanism and spatial planning.

CONCLUSIONS

From the analyses of the mentioned documents, as well as based on the conclusions drawn from the Workshops with specialists in the fields of Environment and Spatial Planning, it was observed that in order to implement the issue of green infrastructures (including ecological corridors) in the spatial planning documents and to amend the current legislation, it is necessary first of all a collaboration between the planning and the environmental sides. More specifically, the legislative framework on the environment should be established first, and as the concept of green infrastructure matures, it is possible to move to the level of urbanism or spatial planning. But the basic element should be the principle of environment, and subsequent at the level of planning and then urbanism.

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