



Deliverable D5.1

Status of national policy, legislation and implementation tools and recommendations for the integration of the EU SGI into transport infrastructure development

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TABLE OF ABBREVIATIONS

Abbreviation	Meaning
AA	Appropriate Assessment
ECJ	European Court of Justice
EEA	European Environmental Agency
EIA	Environmental Impact Assessment
EU	European Union
EU SDR	EU Strategy for the Danube Region
GI	Green Infrastructure
MS	Members States
NGO	Non-governmental Organisation
RTE	Réseau de Transport d'Électricité (France's transmission system operator)
SEA	Strategic Environmental Assessment
SRDA	Strategic Research and Deployment Agenda
T	Task
TFEU	Treaty on the Functioning of the European Union

EXECUTIVE SUMMARY

The BISON project is led by a consortium of 39 European members and associated countries. It aims to tackle the integration of biodiversity with the development of transport infrastructure, including roads, railways, waterways, airports, ports, or energy transport networks.

Within the BISON project, WP5 aims –among other - to set the ground for the necessary actions and innovative solutions to take place, in order for the mainstreaming of Green & Grey infrastructure across the EU Member States and across the different transport modes to be achieved. WP5 will produce the deployment side of the Strategic Research and Deployment Agenda (SRDA) that will be developed within the BISON project. Within this scope of WP5, Task 5.1 aims to identify the level of integration of the provisions set by the EU SGI, as these are also supported by actions under target 2 of the EU Biodiversity Strategy, and by the transport policy and legislative framework of the EU Member States.

More specifically, an alignment assessment of national transport policies with the EU SGI has taken place in the context of T5.1, identifying gaps for the EU members states and considering all transport modes, while and it has reviewed how EU SGI & Biodiversity Strategy are integrated into the National Transport Master Plans and how biodiversity & ecological connectivity are addressed in the Strategic Environmental Assessments (SEAs), The methodology for this action used has been also fed by the Interreg project HARMON (<https://www.interreg-danube.eu/>). Moreover, within Task 5.1 the integration level (legal gaps, obstacles & inconsistencies) of the provisions of the EU SGI and the EU Strategy on Biodiversity in EU transport and biodiversity legislation to EU Member States has been also analysed.

In its next steps Task 5.1 will examine and analyse how the defined policy and legislation status of EU Member States is translated into implementation at local/regional level and what specific processes are foreseen towards ecological connectivity. Recommendations per transport mode will be also proposed.

This Deliverable (D5.1): “*Status of national policy, legislation and implementation tools and recommendations for the integration of the EU SGI into transport infrastructure development*” of the BISON project is the first deliverable produced in the context of WP5 and focuses on presenting the current status of alignment of the national transport policies and related legislation with the EU SGI.

This report will set the basis for the following work of Task 5.1 mainly integrating future feedback and input on the findings also by external stakeholders (in dedicated consultation sessions) that will lead to the development of the recommendations for policy/strategy harmonization that will be included in D5.2 (Month 23). The current deliverable, as well as the coming WP5 deliverable (D5.2) will feed into the SRDA.

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1. INTRODUCTION

Transport networks are considered to be a commonplace of the European landscape that facilitate the connection of people, their provision of access to key services, while they also facilitate and promote economic activity. However, transport networks usually also influence the environment around them and they often introduce barriers between natural areas, as they accommodate the spread of urban areas into the relatively rural and less populated European areas, putting pressure on natural habitats. For example, connecting remote mountain regions or islands to the European transport system could attract more tourists to the area, resulting, for example, in a boost to accommodation and food-catering services. Transport infrastructure often comes with negative impacts on biodiversity, while the emission of pollutants and the introduction of non-local species pose also additional burdens to ecosystems [EEA, 2016].

Transport infrastructure has both primary and secondary effects on nature. According to the IENE “European Handbook for Identifying Conflicts and Designing Solutions”¹, it is possible to distinguish between five major categories of primary ecological effects, namely the following:

1. Loss of wildlife habitat.
2. Barrier effects.
3. Fauna casualties - collisions between transport and wildlife.
4. Disturbance and pollution.
5. Ecological function of verges (edges of infrastructure development).

Practically speaking, these impacts normally interact and may altogether build their adverse consequence through synergistic impacts. The results of weakening natural life territory, boundary impacts, segregation, and aggravation can be summed up by the term “fragmentation”.

The loss of biodiversity, its impact on the delivery of ecosystem services, as well as on the whole society and economy, has become one of the main environmental challenges and together with the need for action on climate change are widely recognised across Europe and around the world. To make progress towards addressing those challenges, adapting to climate change, and reducing the loss of biodiversity and the defragmentation of ecosystems, it is crucial to fully integrate these issues in the plans, policies, legislation, programmes and projects implemented across the EU, while also to employ all available tools to tackle these global threats. For example, Environmental Impact Assessments (EIAs), Strategic Environmental Assessments (SEAs) and Appropriate Assessment (AA) procedures² are legally required and are considered as tools, well suited to systematically tackle such problems.

For biodiversity mainstreaming to be achieved, all levels of government should be involved and all relevant stakeholders should be included. As presented in Figure 1 below, entry points which are located at different levels of governance, interact with each other, including attention to biodiversity and ecosystem services within a national or sector development plan. Similarly, doing so will be insufficient if sub-national and sector level activities are not coordinated and aligned with the national vision and strategy.

¹ <https://handbookwildlifetraffic.info/ch-3-effects-of-infrastructure-on-nature/3-2-ecological-effects-of-transport-infrastructure/>

²

https://ec.europa.eu/inea/sites/default/files/download/events/2014/may_ENER_info_day/cef_2352014_hab_dir_art_6_aa_env_extra.pdf

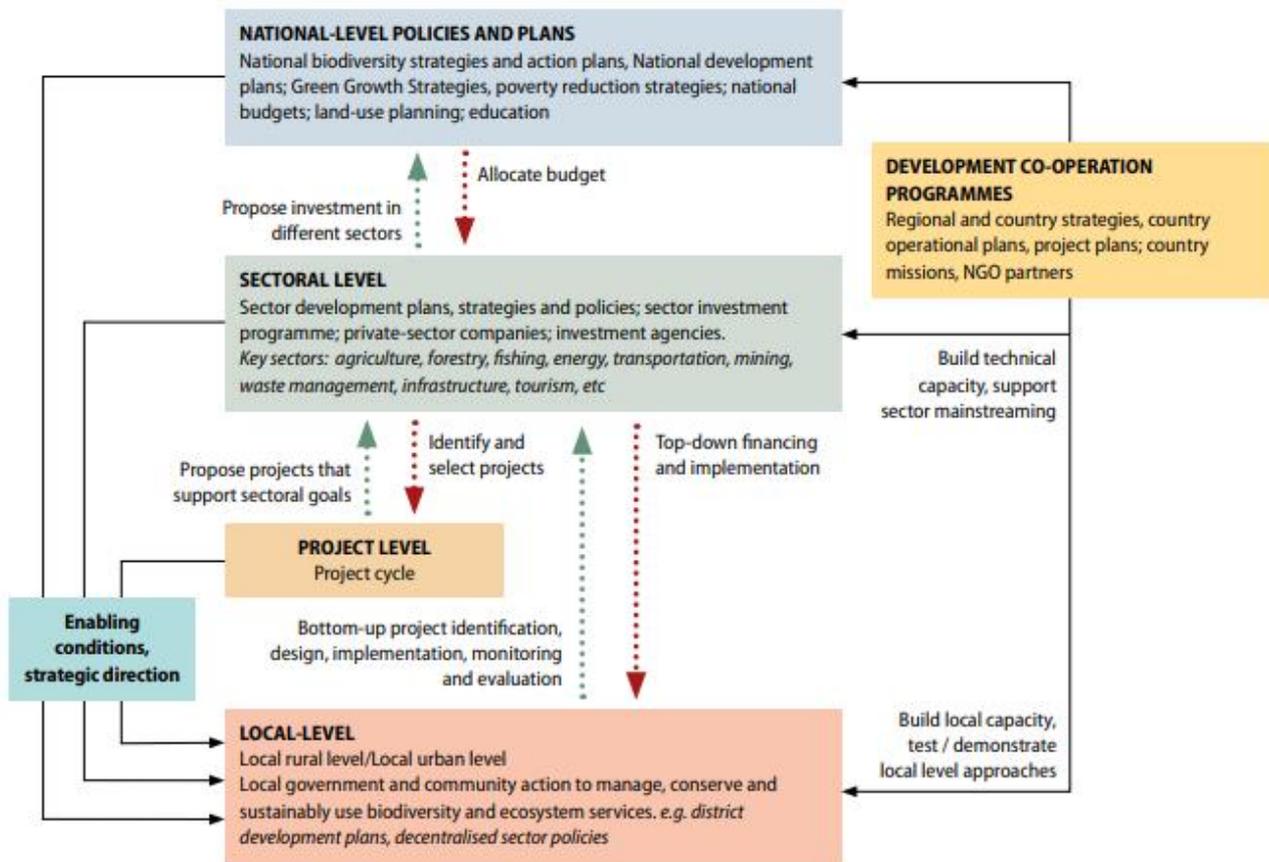


Figure 1: Entry points for mainstreaming biodiversity (Source: Adapted from OECD (2009), Integrating Climate Change Adaptation into Development Co-operation: Policy Guidance, <http://dx.doi.org/10.1787/9789264054950-en>.) [OECD, 2018]]

The national level entry point for biodiversity mainstreaming is an important one as it is most often at this level that long-term strategies are developed, while it is also at this level that politics should be captured and presented. Important features to help the promotion of this mainstreaming and enable its implementation in practice include: (a) mainstreaming biodiversity across relevant national plans and strategies; (b) ensuring coordination and coherence across institutions and clearly defining respective roles and responsibilities; (c) generating the evidence-base needed for informed decision-making (e.g. with respect to legislative and policy frameworks) and (d) mainstreaming biodiversity in national budgets. Moreover, the need to monitor and evaluate mainstreaming efforts cannot be underestimated, in order to achieve desired objectives, with the use of indicators being a key component of this [OECD, 2018].

The protection of biodiversity has been at the heart of European policies since the beginning of the European Union's intervention in environmental matters. The EU actions have aimed both to protect the elements of biodiversity, such as ecosystems, and to reduce the nuisances that impact the environment. However, even though these pieces of EU policy and legislation have brought positive developments, biodiversity losses continue to increase and to be recorded. The main cause of biodiversity loss is human activity, both directly and indirectly (climate change) and in this respect, the development of transport infrastructures have a particular impact on the protection of biodiversity in several respects. All man-made infrastructure networks, such as road, rail and inland water channels, are designed and structured to connect urban areas, rural areas and people. They aim to stimulate/develop human and economic activities in the areas they connect, creating/increasing local environmental pressures. At the same time they also create barriers, dividing the natural landscape into smaller areas. For example, a motorway cutting through a forest or a wooded area represents a physical barrier for both animal and plant species,

which reduces the total area available for wild life, but also causes a lack of connectivity between different habitats making their populations more vulnerable. Animals need to move around to find food and mate, risking being injured or killed while trying. Even fences around transport networks often isolate the population of a particular species such limiting their genetic pool and making them more vulnerable to diseases, and ultimately dying out. Better connectivity through dedicated tunnels or bridges would certainly reduce the pressure on Europe's biodiversity and ecosystems. In fact, these initiatives could be better planned on a much wider scale than a single infrastructure project, involving different stakeholders (e.g, planners, investors, citizens, public authorities etc.) [EEA, 2016].

In the context of the Green Deal [EC, 2019], the European Union has strengthened its will to fight against the loss of biodiversity by adopting EU Biodiversity Strategy for 2030 [EC, 2020], setting objectives to stop the loss of biodiversity, aiming in particular to increase the surface of protected areas, to increase the protection of forests, and to strengthen the legal rules. At this stage, even if the main lines of action have been defined, the concrete actions are still being defined. Consequently, the integration of these objectives into transport policies, particularly when they are implemented at national level, is first and foremost a matter for the classic legal instruments of European Union law, which relate to the development of protected areas and the implementation of environmental assessment. The mobilisation of environmental law, in the context of transport infrastructure development, aims firstly to impose the taking into account of biodiversity conservation objectives, but also aims to offer ways of reconciling the development of human activities with the imperative of protecting the environment, particularly biodiversity. These instruments lead to the establishment of obligations that shall be complied while assessing transport infrastructures, and more specifically at the decisive moment when decisions are made on whether or not to authorise such projects. It should be noted that there are no specific rules applicable to transport, and projects concerning it are therefore subject to general rules. Moreover, in the texts relating to transport, particularly in the context of the promotion of mobility, biodiversity and the need to protect it are not mentioned. Thus, the requirements relating to the protection of biodiversity are imposed on transport infrastructure projects mainly by virtue of the obligations relating to environmental assessment (European Parliament, 2001; 2011), obligations that are reinforced when projects have an impact on protected area or species [European Parliament 1992; 2009].

It is therefore questionable whether these instruments, as defined by European legislation, interpreted by the European Court of Justice and implemented by national administrative authorities, allow the objectives of the European Biodiversity Strategy to be integrated, and if so to what degree and quality. In this respect, particular attention should be paid to the way in which these instruments can promote green infrastructure [EC, 2013]. A "Green Infrastructure" consists of a strategically planned network of high-quality green spaces. It requires a wider look at all green spaces in remote, rural and urban areas, and beyond national borders connects between them so as to facilitate movement of species. To this end, the European Union adopted the Green Infrastructure Strategy EC, 2013] aimed at providing a vision for a trans-European green network, as well as facilitating coordination among stakeholders, and exchange of ideas and information. Better connectivity is not the only positive outcome of green infrastructure. In addition to improving public health, it is increasingly seen as a cost-efficient way of reducing current (or future) weather and climate-related natural hazards.

In contrast to the Green Infrastructure Strategy and the European Biodiversity Strategy, which are soft law documents, the requirements for environmental assessment are laid down in Directives, and as such are binding on national authorities, which, while they have a margin of discretion in defining the legal means for implementing the objectives of the Directive, are required to ensure that these objectives are achieved at national level. Thus, the national margin of discretion is irreducible, when implementing and enforcing the rules of the Directive in the single case when authorising particular projects (or planning instruments). This margin of appreciation shall obviously be implemented in accordance with the objectives of the directives, aimed at ensuring that biodiversity conservation objectives are taken into account. These moments appear to be crucial to ensure the effective integration of the objectives of the European Biodiversity Strategy. In order to measure the extent of the margin of appreciation left to the Member States, it is first necessary to analyse the level of European Union law, in order to determine to

what extent the definition of the relevant standards constrains and frames the national authorities, particularly when they must define the balance sought between biodiversity and economic development. It will then be necessary to refer not only to the content of secondary legislation³, but also to the interpretation made of it by the European Court of Justice, an interpretation that is decisive for the supervision of national authorities. Secondly, it is necessary to analyse the national implementation of European rules in order to assess the concrete effectiveness, the real degree and the state of integration of biodiversity requirements in the definition and implementation of transport policy.

As the pre-existing information on how European strategies are implemented today across countries relatively to transport infrastructure is very limited, the work that has been carried out within this report provides information on how well the EU strategies (especially EU SGI) are known by actors and whether (and how) they are applied in different countries, i.e. the popularity of these strategies in the sector of transport. More specifically, BISON Deliverable 5.1 includes the findings of the assessment analysis that took place in the context of Task 5.1 regarding the status and needs of the policy and legislative framework in support of the integration of the EU SGI into national transport infrastructure development, while also provides recommendations for legislative harmonization. This report will feed into the Strategic Research and Deployment Agenda (SRDA) which will be developed within the BISON project and which can be deployed at multiple scales, within the EU research framework programme, or by other regional, national or local programmes, in order to improve the knowledge-base on infrastructure and biodiversity. The SRDA will optimise research investments by clearly identifying the new and future needs for research and innovation, related to the evolution of transport modes and evolution of biodiversity, in the context of climate change.

³ Secondary legislation is a collective term used to describe all the various types of law the European institutions can make: *Regulations, directives, decisions* (binding), as listed in Article 288 of the Treaty on the Functioning of the EU); "soft laws" (non-binding) such as *communications, opinions, recommendations, white and green papers; Delegated Acts and Implementing Acts*. Available at:

<https://www.eui.eu/Research/Library/ResearchGuides/EuropeanInformation/EU-Legislation>

2. METHODOLOGY

In order to provide an holistic overview of the integration level of the provisions set by the EU SGI, and the EU Biodiversity Strategy, to the transport policy and legislative framework of the EU Member States, emphasis has been provided to both the analysis of relevant literature sources but also to the consultation of relevant experts both from the transport and also the environmental and biodiversity sectors.

For a thorough analysis to be achieved and for us to be able to present a comprehensive representation of the alignment status in the EU Members States (MS) to the EU relevant strategies, the work has been divided into 2 different parts. The first part concerns the integration of the biodiversity-related policies of EU (with focus on the European Biodiversity Strategy and the Green Infrastructure Strategy) in the policies and strategies of the different EU MS and the other part concerns the legislation alignment of the EU MS to those EU Strategies and the respective legislative actions. Of course, these 2 parts are considered to be interdependent and complementary, so they are both required to provide a good overview of the alignment level of the EU Member States to the EU relevant strategies in total.

2.1 Assessing the alignment of national transport policies with the EU Strategy

The first step for collecting the necessary information on the alignment of the national transport [policies with the EU biodiversity strategy but also the EU GIS, has been the development of the BISON questionnaire (<https://bison-transport.eu/questionnaire/>), which has been developed with the contribution of almost the whole BISON Consortium, aiming to facilitate the progress of the different tasks of the project, by providing them with the necessary input by transport and biodiversity experts from all over Europe and beyond.

This questionnaire combined both strategic and technical questions, according to the expertise and the experience of each respondent and fed into the different needs of the project. It has been uploaded to the BISON website for 5 months and widely disseminated by the project's dissemination team in general but also by the different involved partners towards more dedicated and relevant audiences, depending on the varying needs of the different WPs and Tasks.

In the context of Task 5.1 that deals with the objectives of this report, 22 questions have been included in this questionnaire, under the section "Strategy and Planning Aspects".

More than 15 countries have been represented (Figure 2) though the participation of 111 respondents in total.

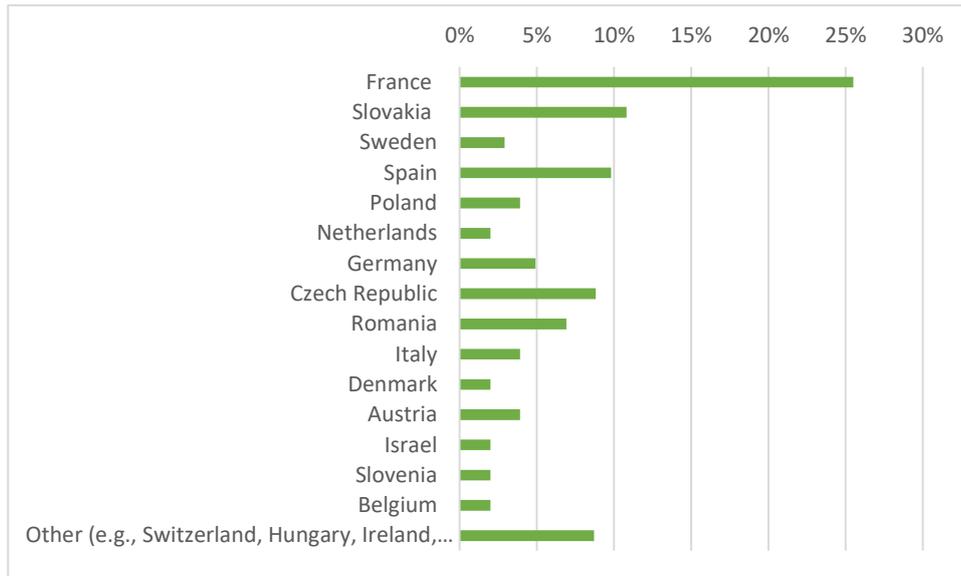


Figure 2: Representation of countries in the overall BISON survey (in the T5.1 part)

The vast majority of the respondents also represented national authorities and/organisations, including at first transport and environmental administrations (28,8%), universities and research institutes (21,6%), transport Infrastructure construction and management operator companies, public agencies, environmental consultancies, NGOs, etc. (Figure 3).

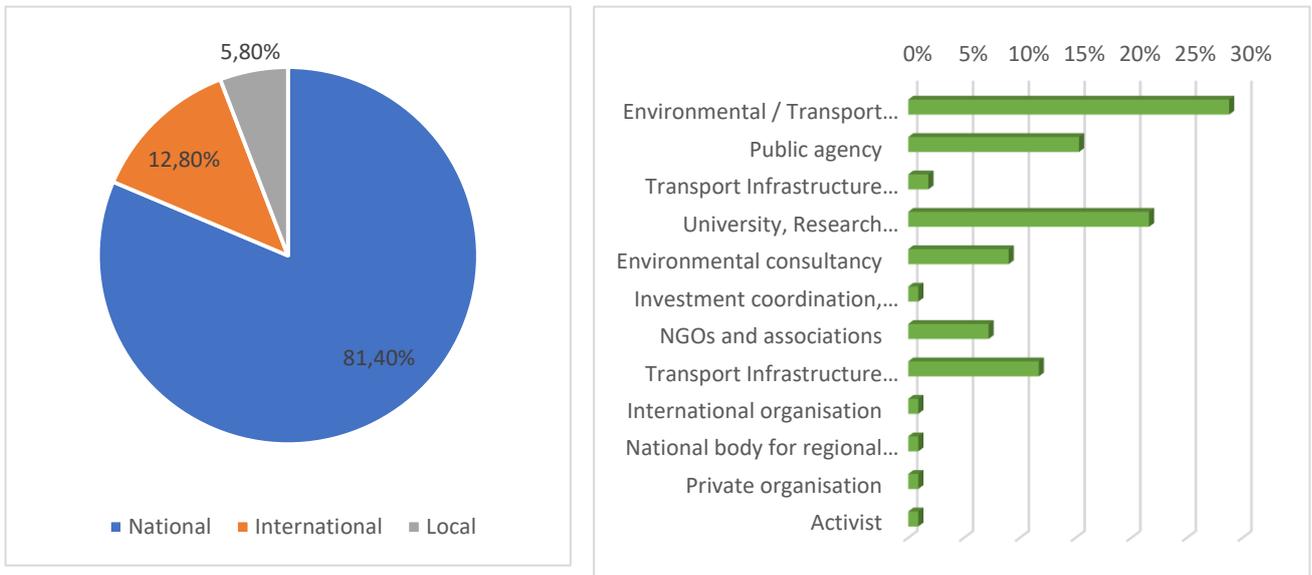


Figure 3: Type of organisations of the T5.1 related respondents

Moreover, the input received through this survey concerns all different transport modes and respective areas examined within the BISON project, with the majority of the respondents representing road, rail transport modes, as well as waterways (Figure 4).

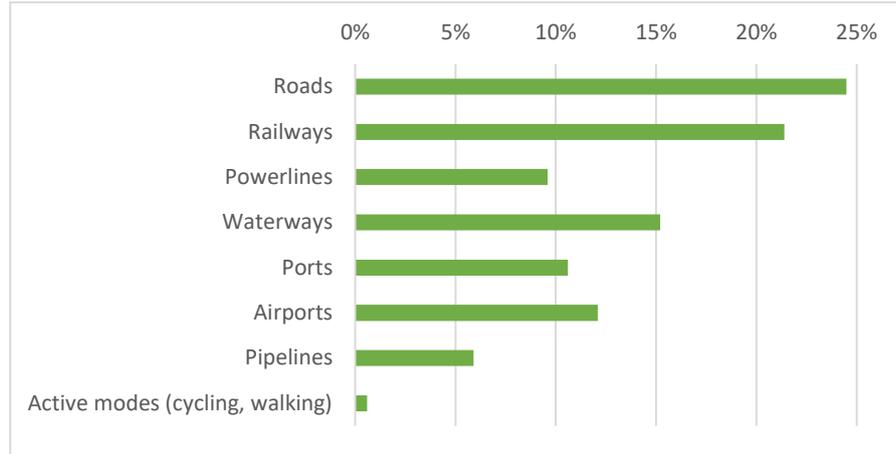


Figure 4: Transport modes and fields representation the T5.1 related respondents

The analysis of the answers provided through this questionnaire, offered a quite good overview of the alignment status of different EU countries but in some cases the input has been conflicting for some countries, either due to the fact that was coming from different types of stakeholders and experts or because it concerned different (e.g., federal) areas of the same country (such as in the case of Spain and Germany). Moreover, for some countries (e.g., Greece) information was not obtained, leaving a gap in the possibility of generating an integrated overview.

This was one of the reasons that the involved partners proceeded with the development of a second survey (<https://www.soscisurvey.de/bisonsurvey/>), more dedicated to the scope of this task, and the information missing, with emphasis on the integration of the EU SGI into transport infrastructure development. This questionnaire was circulated to more restricted number of recipients and relevant experts that could provide us with the necessary input, in order to cover the existing gaps and offer us a more holistic picture of the EU countries respective status.

22 replies have been received and analysed from this questionnaire, coming from **13 EU countries** (namely, Austria, Belgium, Czech Republic, France, Germany, Greece, Italy, Netherlands, Poland, Romania, Slovakia, Spain and Switzerland). Again the majority of the respondents represented road, rail and waterways, including however all transport modes, while most of them came from transport administration organisations and environmental consultancies (Figure 5).

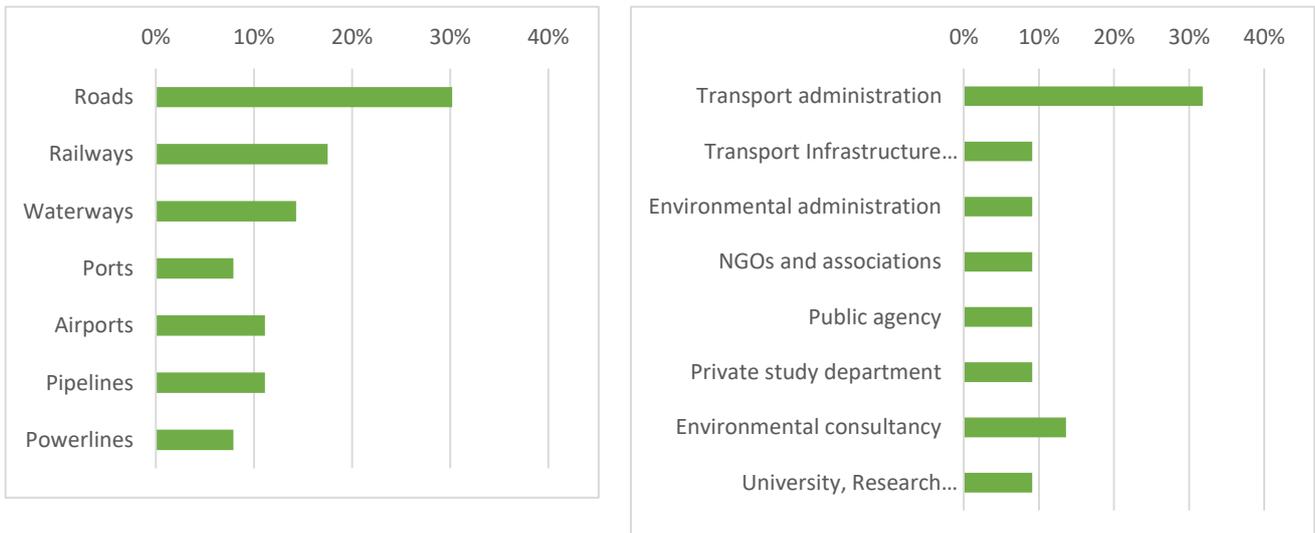


Figure 5: Transport modes and types of organisations share of the second T5.1 questionnaire respondents.

The whole process and the overall information collected for the different countries has been also reinforced and complemented whenever possible, by the BISON partners, through their contacts with relevant experts and representatives from relevant organisations and entities.

2.1.1 Criteria for assessing the alignment of national transport policies with the EU Strategy

For the analysis of the input collected by all the aforementioned sources and mainly by the second questionnaire, and in order to achieve an homogeneity of the outcomes, specific criteria have been defined and further analysed into parameters and questions.

This work and especially the analysis of those criteria has been based on the respective work that took place within the HARMON (Harmonization of Green and Grey Infrastructure in Danube Region) project [Mot et al., 2019], which aimed to support the governance and implementation of the EU Strategy for the Danube Region (EUSDR), as well as improve the governance system and the capabilities and capacities of public institutions and key actors involved in complex transnational project development to implement the EUSDR in a more effective way.

Finally, to facilitate the process and harmonize the expression of answers, some predefined (optional) possibilities, for each criterion, have been also suggested.

More specifically, the defined criteria and their analysis, which have been also used for the development of the second –brief- questionnaire, are presented in Table 1 below.



Table 1: Criteria formulated as questions and parameters for assessing the alignment of National Transport Policies with the EU Strategy on Green Infrastructure (SGI)

CRITERIA		CRITERIA formulated as questions	PARAMETERS and predefined answers helping to define HARMONISATION STATUS LEVELS		Additional Optional Answers
1	<i>Integration of EU SGI in the National strategic planning for transports.</i>	Is the EU SGI adopted/referenced in the transport national policy in your country and if so, at what level?	a. The EU SGI is transposed as a stand-alone national policy document	YES	Please specify: <ul style="list-style-type: none"> National GI Strategy and/or Action Plan; GI National law; Ministerial degree on GI; Regulation on GI; Other ...
				IN PROGRESS <i>(As the EU SGI is something new; it's possible that countries are in progress to adopt it at the current stage.)</i>	Please specify: <ul style="list-style-type: none"> National GI Strategy and/or Action Plan; GI National law; Ministerial degree on GI; Regulation on GI;
				NO	
				I DON'T KNOW	
			b. Within the Transport Master Plan and/or its SEA (and, if the case, the national law / action plan) the EU SGI is referenced as mandatory to comply with.	YES, explicitly.	Please provide references...
				PARTIALLY	Please provide references...
NO					

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CRITERIA		CRITERIA formulated as questions	PARAMETERS and predefined answers helping to define HARMONISATION STATUS LEVELS		Additional Optional Answers
				I DON'T KNOW	
			c. Within the Transport Master Plan and/or its SEA it is formally agreed / stated that Transport Infrastructure has impacts on GI (biodiversity and ecological connectivity) that needs to be addressed at long term.	YES	Please provide references...
				IN PROGRESS (it is being envisioned for the next versions of the Transport Master Plan /SEA)	Please provide references... /define the estimated timeframe or milestones...
				NO	
				I DON'T KNOW	
2	<i>Inclusion of ecological connectivity-related targets in national Transport Master Plans (or similar strategic transport documents) and their SEAs.</i>	Are there precise target-based requirements included in the Transport Master Plan (or similar strategic transport document) and its SEA, in order to assess the impact on ecological connectivity?	The requirement is mandatory through the SEA and specific clear quantitative and qualitative indicators /thresholds are being provided.	YES	Please give some examples of specific clear quantitative and qualitative indicators /thresholds being provided.
				PARTIALLY (Yes, but there are no specific clear quantitative and qualitative indicators /thresholds being provided).	
				NO	
				I DON'T KNOW	
3	<i>Identification and detailed mapping of Green and Grey Infrastructure conflict</i>	Are Green and Grey Infrastructure maps available in order to support harmonization decision-	a. There is an official, clear, comprehensive and periodically updated methodology for	YES	Please provide references...
				IN PROGRESS / PARTIALLY	Please specify ...
				NO	

CRITERIA		CRITERIA formulated as questions	PARAMETERS and predefined answers helping to define HARMONISATION STATUS LEVELS		Additional Optional Answers	
<p><i>points at national and regional level.</i></p> <p><i>Note:</i></p> <p><i>‘Green Infrastructure’ is referred to Natural Protected Areas and Ecological Corridors</i></p> <p><i>‘Grey Infrastructure’ is referred to Transport Infrastructure</i></p>	<p>making at national and regional level?</p>	<p>mapping the Green Infrastructure.</p>	I DON'T KNOW			
			<p>b. Green and Grey Infrastructure maps are available officially in useful formats (i.e. GIS shape files).</p>	YES	Please provide references...	
				IN PROGRESS / PARTIALLY	Please specify ...	
				NO		
		<p>c. Critical intersection between Green with Grey Infrastructure (conflict points where infrastructure overlap ecological corridors or Natural Protected Areas) are mapped (and available in useful formats - i.e. GIS shape files) and described/ assessed/monitored.</p>	I DON'T KNOW			
			YES	Please provide references...		
			IN PROGRESS / PARTIALLY	Please specify ...		
			NO			
		<p>d. All structures (drainages, under or overpasses) on linear transport infrastructure are being considered and adapted as potential wildlife crossing structures (in the EIA procedure, in upgrading projects, etc.).</p>	I DON'T KNOW			
			YES	Please provide references...		
			IN PROGRESS / PARTIALLY	Please specify ...		
			NO			
		<p>4</p> <p><i>Efficient involvement of the key-</i></p>	<p>Is there an established process ensuring efficient participatory engagement of the key- stakeholders and</p>	<p>a. A consultation procedure is in place and the involvement of the stakeholders is based on the open public opinion process</p>	YES	Please provide references...

CRITERIA		CRITERIA formulated as questions	PARAMETERS and predefined answers helping to define HARMONISATION STATUS LEVELS		Additional Optional Answers			
	<i>stakeholders and communication.</i>	outreaching to general public during all phases of the transport infrastructure development, from the early planning, to construction, operation and maintenance?	aiming to inform and to consult with them (e.g. as part of the in EIA/AA procedures), but also aiming to foster collaboration with key-stakeholders which would assume “involvement” or “fundamentally collaborative” roles.	IN PROGRESS / PARTIALLY	Please specify ...			
				NO				
				I DON'T KNOW				
				YES	Please provide references...			
						b. Efficient engagement of key-stakeholders is encouraged by authorities/official responsible bodies by setting up open consultation committees / working groups (with an agreed working procedure in terms of competence, facilitation, conflict resolution, decisions-making and transparency etc.) including all stakeholders with “involvement” and “fundamentally collaborated” roles.	IN PROGRESS / PARTIALLY	Please specify ...
							NO	
							I DON'T KNOW	
							YES	Please provide references...
5	<i>Enforcement of the mitigation hierarchy on selection of linear transport infrastructure alignments in relationship with natural protected areas and ecological corridors.</i>	Are the avoidance - mitigation - compensation options of the mitigation hierarchy being applied, including the in-depth evaluation of alternative scenarios and of cumulative impacts?	a. The mitigation hierarchy is properly applied in cases when transport infrastructure intersects or impacts important natural protected areas and/or ecological corridors, including in-depth evaluation and comparative synthesis of alternative scenarios and of the cumulative impacts (of other	YES	Please provide references...			
				PARTIALLY	Please specify ...			
				NO				
				I DON'T KNOW				

CRITERIA		CRITERIA formulated as questions	PARAMETERS and predefined answers helping to define HARMONISATION STATUS LEVELS		Additional Optional Answers
			existing or on planned infrastructure project).		
			b. When choosing the “avoidance” of intersecting natural protected areas or ecological corridors by linear transport infrastructure option, Article 6 of the Habitat Directive is enforced by applying mitigation - compensation measures to secure the cohesion of the protected areas network and the functionality of the ecological connectivity.	YES	Please provide references...
				PARTIALLY	Please specify ...
				NO	
				I DON'T KNOW	
6	<i>Provision of clear biodiversity-related objectives and appropriate tools and processes to be used during the whole life cycle of transport infrastructure.</i>	Are there appropriate and functional legal, administrative and technical/scientific tools and processes aiming to protect wildlife, habitats, and landscapes and to safeguard ecological connectivity?	a. All relevant species (including non-resident and not-protected ones, if the case), habitats and landscape features are identified and assessed in relationship with pressure/threats and specific local impacts posed by linear transport infrastructure.	YES	Please provide references...
				PARTIALLY	Please specify ...
				NO	
				I DON'T KNOW	
			b. Comprehensive and functional database exists, GIS tools are being used to model and assess various scenarios, based on	YES	Please provide references...
				PARTIALLY	Please specify ...

CRITERIA		CRITERIA formulated as questions	PARAMETERS and predefined answers helping to define HARMONISATION STATUS LEVELS		Additional Optional Answers
		Are there operational biodiversity-related objectives defined for planning, design, construction, operation and maintenance phases of the transport infrastructure for conserving relevant wildlife species habitats and landscapes?	distribution maps, land permeability (fauna passages connectivity structures) maps and detailed barrier mapping of linear features in relationship with core-areas, stepping-stones, corridors and bottlenecks etc.	NO	
				I DON'T KNOW	
			c. OTHER Appropriate and functional legal, administrative and technical/scientific tools and processes aiming to address protection of species, habitats, and landscapes and to safeguard ecological connectivity are in place. ?	YES	Please provide references...
				PARTIALLY	Please specify ...
				NO	
				I DON'T KNOW	
			d. Specific operational objectives for conserving species, habitats, landscapes and for safeguarding connectivity are defined for all phases of the transport infrastructure (planning, design, construction, operation and maintenance, decommission) within a concrete action plan framework (i.e. objectives – measures – actions – indicators – responsible etc.).	YES	Please provide references...
				PARTIALLY	Please specify ...
				NO	
				I DON'T KNOW	
7	Environmental evaluation of the Transport Master Plans in the form of monitoring their	Is an environmental monitoring of Transport Plan being implemented and based on relevant parameters related with	a. There is a formal / official monitoring plan of the Transport Plans including concrete and relevant parameters / indicators	YES	Please provide references...
				PARTIALLY / IN PROGRESS	Please specify ...

CRITERIA		CRITERIA formulated as questions	PARAMETERS and predefined answers helping to define HARMONISATION STATUS LEVELS		Additional Optional Answers
	<i>impacts on biodiversity, according to the SEA Directive.</i>	biodiversity, ecological connectivity and Green Infrastructure status?	/ thresholds related with biodiversity, ecological connectivity and Green Infrastructure status.	NO	
				I DON'T KNOW	
8	<i>Established follow-up process to support the improvement of Transport Master Plans, based on evaluation of a long-term monitoring data.</i>	Is there a follow-up process being established which, based on continuous evaluation, aims: i. to ensure the adaptation of the Transport Master Plan (based on monitoring or observations) on general directions, guiding tools to be used, or on concrete technical aspects, and ii. to support the know-how exchange and the local capacity building based on the evidences of lessons learned?	a. A long-term (continuous) evaluation of the Transport (Master) Plan and a follow-up process is established / formalized	YES	Please provide references...
				PARTIALLY / IN PROGRESS	Please specify ...
				NO	
				I DON'T KNOW	
			b. Based on the evaluation, the Transport Master Plan is reviewed regularly and supplemented with specific solutions on general directions, guiding tools to be used, or on concrete technical aspects.	YES	Please provide references...
				PARTIALLY / IN PROGRESS	Please specify ...
				NO	
				I DON'T KNOW	
			c. Based on the evaluation, lessons learned are recorded and made available to key-stakeholders and knowledge transfer is facilitated by responsible bodies/authorities.	YES	Please provide references...
				PARTIALLY / IN PROGRESS	Please specify ...
				NO	
				I DON'T KNOW	



2.2 Assessing the legal alignment of the different Member States

The European Commission defines green infrastructure as natural or semi-natural areas used to address economic, social and environmental problems⁴. These functions can be environmental, such as adaptation to climate change, social, by improving the quality of life (improving air quality, mitigating the effects of urban thermal islands, etc.), or economic, by creating jobs. The objective is therefore to exploit the natural capital of the water or land, rather than to destroy or artificialize it. These solutions seem particularly interesting when environmental problems and natural disasters could tend to multiply in the years to come with climate change.

Green infrastructures are proposed as alternatives to grey, artificial, less sustainable and generally more expensive infrastructure. The European Commission's Green Infrastructure Strategy aims to encourage the deployment of this type of infrastructure in the Member States in a comprehensive approach.

However, the fact that this concept is relatively recent leads to strong differences in definitions around this term. Each country has its own definition of green infrastructure, different from that given by the European Commission, and considers them more or less broadly. Often, this question is primarily considered around the issues of biodiversity, which corresponds to the diversity of animal and plant species living in an environment.

2.2.1 Comparative questionnaires

In addition to the analysis of the relevant European and national legislation that took place within this task, describing –among others- how are biodiversity issues taken into consideration in infrastructures legislation and also to which extent are biodiversity regulations applicable to infrastructure projects, an analysis of national systems was also carried out, through the realisation of a comparative questionnaire that consisted by the 3 main sections: (a) description of the national background of the examined countries, (b) description of the national transport infrastructures policy in comparison to the EU environmental requirements and (c) a juridical review.

For this comparative law study, 7 countries were studied: Belgium, Bulgaria, France, Germany, Italy, Spain, and Sweden. This selection provides a broad overview, with countries with different state and economic structures. Structural differences necessarily have a strong influence on how green infrastructure is taken into account in legal and political terms, the powers and competences are not distributed in the same way at the territorial level according to the organizations. Depending on whether the countries are organised in a federal (Germany, Belgium), regional (Italy, Spain) or unitary (Bulgaria, France) way, decentralization is more or less strong, legislative and political competences being more or less distributed between national and local levels. Depending on the type of organization, the regions are more or less autonomous and therefore have more or less prerogatives in terms of the environment and transport in relation to the States. For example, in Italy, some regions and cities have much more integrated green infrastructure than others, while in Bulgaria the consideration of green infrastructure is much more uniform.

It is necessary to point out that as the questionnaire was carried out and analyzed by a French team, certain questions, despite the team's efforts, remain inevitably more or less influenced by the French vision, and are therefore not completely neutral.

⁴ https://ec.europa.eu/environment/nature/ecosystems/index_en.htm

2.2.2 Workshop on the discussion of the results of the comparative analysis

Due to the pandemic situation mainly, it was very difficult to organize the initially scheduled workshop that would facilitate the discussion of the aforementioned comparative analysis. Moreover, from a methodological point of view, it proved more efficient to exchange directly and bilaterally with each expert when and where clarifications on the answers were required, a process that took place through separate and individual online consultations.

3. MAPPING THE MAINSTREAMING OF GREEN & GREY INFRASTRUCTURE

3.1 Main findings

3.1.1 Alignment of national transport policies with the EU Strategies

The main finding that has occurred by the work carried out with this BISON task (T5.1) and especially the work regarding the assessment of the integration of the EU strategies to the national policies and programmes, concerns mainly the fact that there is no uniform situation and a general status throughout the EU Member States, but on the contrary differences can be noticed among the various countries examined, or even within the same country.

By providing a first overview of the EU countries status, a share of almost 40% of the countries examined (20 countries in total⁵, from which 17 EU MS) responded positively having integrated the EU Strategy on Green Infrastructure (EU-SGI) and the EU Biodiversity Strategy for 2030 in their transport policy and related strategies (namely, Austria, France, Germany, Ireland, Poland, Spain (Catalonia) Sweden), while 33% of the countries stated (through their experts participation) that they were not aware about their countries respective status or conflicting information has been provided by different experts (Figure 6), such as from Czech Republic, Italy, Netherlands, Romania and Slovakia. Finally, experts from Belgium, Hungary, Portugal, Slovenia and Spain (except from Catalonia) stated that their countries have not integrated the EU Strategies into their national transport policies.

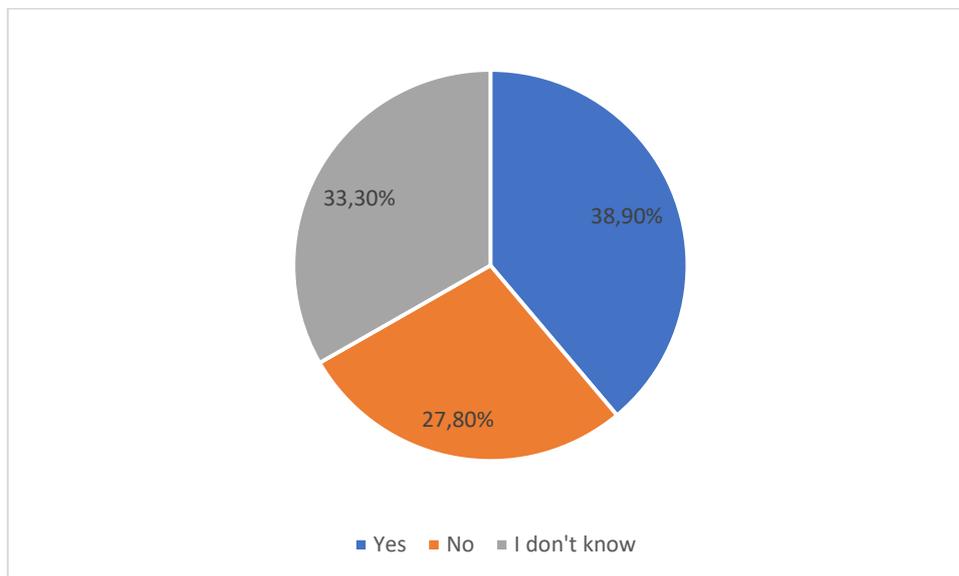


Figure 6: Integration of the EU Strategy on Green Infrastructure (EU-SGI) and the EU Biodiversity Strategy for 2030 in national transport policies

Moreover, from the countries that have not yet aligned to these EU Strategies, the vast majority (87,5%) have neither launched a process towards their integration in their National Transport Policy and Strategies towards the next 1-2 years, while more than half of them (57.4%) also stated that there is no legal obligation to integrate EU-SGI in their Transport Development at national level.

⁵ Austria, Belgium, Czech Republic, Denmark, France, Germany, Hungary, Ireland, Israel, Italy, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, UK)

The main reason that has been referenced as a justification for this by different experts deals mainly with the lack of coordination and cooperation between the different sectors (namely, the transport and environmental ones) Nevertheless, more reasons have been mentioned, including also the lack of concern and/or political will and priority on behalf of the different countries governments towards this specific goal, as well as the fact that economy still remains the main factor that rules relevant political decisions has acted as a inhibitory actor in several cases. Moreover, various respondents stressed the fact that the transport sector mainly focus at achieving its own objectives, often without strongly considering the environmental goals, notwithstanding the climate emergency (at policy level).

However, on the other hand, in the vast majority (~78%) of the countries participated in the BISON survey, a Strategic Environmental Assessment (SEA) been already implemented within their National/Regional Master Plan(s) (or relevant documents), while the 86% of them have also integrated the special topics of biodiversity, ecological connectivity and Green Infrastructure in to their SEAs, Moreover, in most countries (62%) this integration has been also translated into regional policies, strategies and action plans.

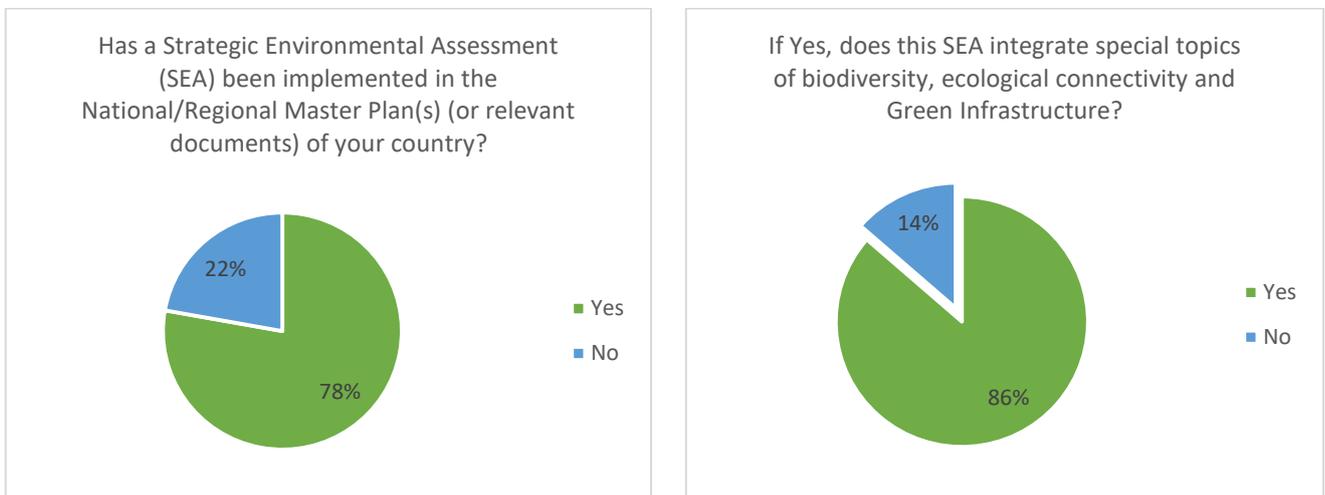


Figure 7: Integration of biodiversity related topics into the national Strategic Environmental Assessments

In Table 2 below, some more details regarding the form of integration of biodiversity in various National/Regional Transport Master Plan(s) and/or relevant documents, are presented.

Table 2: Indicative forms of integration of biodiversity and GI issues into some national/regional Transport Master Plan(s) and/or relevant documents

Country	Description
Austria	Biodiversity and Green Infrastructure are incorporated into policies and plans of our state Transport Agency, these align to environmental planning and biodiversity protection legislation at the state and national level ⁶ .
Czech Republic	The EIA process includes a section on avoiding the barrier effect of roads on the landscape. There are technical rules from the Ministry of Transport regarding this issue.

⁶ <http://www.fsv.at/shop/produktlisteEN.aspx?ID=54178164-05fc-495e-9a32-c3e36373517a>

Country	Description
France	<p>Multi-scale cartography of green and blue infrastructure at national level, regional level and local level, which can include an action plan. But environmental considerations are always secondary regarding transport projects</p> <p>Act4Nature is a voluntary commitment initiative in favour of biodiversity intended for French companies. As an example, RTE (Réseau de Transport d'Électricité) took 6 engagements integrating this initiative such as collaborators sensibilization, pollinating insect preservation or R&D knowledges deepening⁷⁸</p>
Netherlands	<p>MJPO (Multi-Year Programme for Defragmentation) takes care of defragmenting nature by installing structures such as ecoducts, ecoculverts, wildlife tunnels and banks along existing infrastructure that are easily passable for wildlife.</p> <p>MJPO⁹: Ministry of Infrastructure and Water management, Ministry of Agriculture, Nature and Food Quality, the 12 Dutch provinces (2005-2018).</p> <p>Executed by Rijkswaterstaat (road and waterways) and ProRail (roads)</p>
Poland	<p>Act of 3 October 2008¹⁰ on the provision of information on the environment and its protection, public participation in environmental protection and on environmental impact assessments¹¹</p>
Spain	<p>An analysis on the impact of transport in the Natura 2000 network is included but a global analyses on biodiversity and ecological connectivity is not included. The Spanish Infrastructure Plan¹² (includes an action 'To improve the global connectivity and consider the habitat fragmentation'. Moreover, at National level there is an initiative from MITECO (Ministry for Ecological Transition) to develop a Defragmentation Strategy to reduce effects of transport lineal infrastructure (but it's still under preparation). This initiative is promoted from Environment authorities. Not from Transport authorities.</p> <p>However, it needs to be pointed out that Spain is one of the cases that there are differences within the country itself, since Catalonia has already integrated the EU Strategy on Green Infrastructure (EU-SGI) and the EU Strategy Biodiversity for 2030 (EU-SB) in its transport Policy and Strategies, in contrast to the rest of the country.</p> <p>More specifically, in Catalonia a new Strategy for permeabilization and defragmentation of the transport infrastructure is starting to be drafted linked to the Strategy of the Green Infrastructure, Connectivity and Ecological Restoration. Simultaneously, there is preparing an Action Plan on this last mentioned strategy. All the products above mentioned are</p>

⁷ <http://www.act4nature.com/wp-content/uploads/2020/10/RTE-VA.pdf>

⁸ <https://biodiversite.gouv.fr/>

⁹ <https://ontsnipping.nl/ontsnipping/english/>

¹⁰ <https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=wdu20081991227>

¹¹ <https://www.gov.pl/web/infrastruktura/rozwoj-transportu-w-polsce>

¹² <https://www.fomento.gob.es/NR/rdonlyres/E35B8D33-F3B6-4695-9012-C22229966FA0/130944/PITVI20122024.pdf>

Country	Description
	included in the strategies and plan mentioned, and also in the Strategic Plan of the Natural Heritage and Biodiversity for 2011-2017 and updated draft which is nearly ready. A new Power lines adaptation Strategy is under preparation as well.

The second (shorter) survey that was developed and circulated within this Task, focused on the integration of specifically the EU Strategy on Green Infrastructure (SGI) that is also the main focus of this report. As also mentioned above, representatives from **13 EU countries** (namely, Austria, Belgium, Czech Republic, France, Germany, Greece, Italy, Netherlands, Poland, Romania, Slovakia, Spain and Switzerland) participated in this, providing information on their respective national SGI integration status. The input received from these countries varies with the 27% of the countries stating that they have already adopted in their national transport policy (namely, France, Germany, Greece and Spain – Catalonia), while, another 27% stated that this integration is still in progress (e.g., Czech Republic, Romania, Slovakia). This integration has been done (or is being done) either as a stand-alone national policy document, or within each country Transport Master Plan.

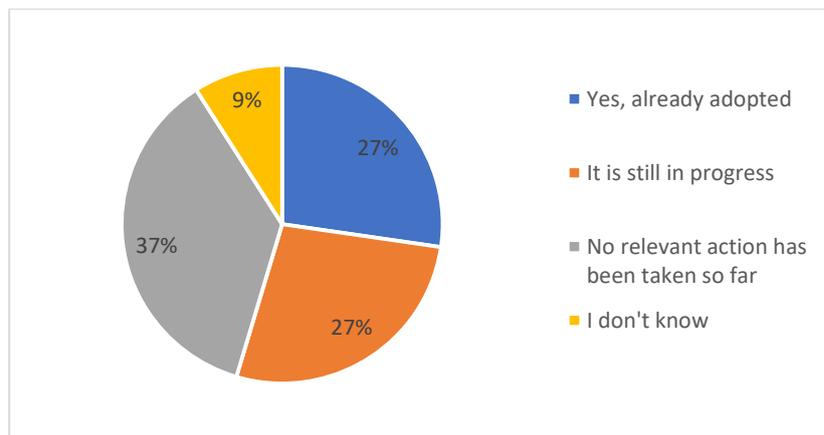


Figure 8: Integration of the EU Strategy on Green Infrastructure (SGI) in national policies

Furthermore, the majority of the participating countries (58%) are in progress for setting the precise target-based requirements within their Transport Master Plan (or similar strategic transport document) and the Strategic Environments Assessment (SEA), in order to assess the impact on ecological connectivity, while 25% of them have already done so (e.g., France, Germany and Switzerland), either in national or regional level. In addition, experts from Belgium, France, Germany, Romania, Spain and Switzerland stated that Green and Grey Infrastructure maps available in order to support harmonization decision-making at the national and regional levels in useful formats (i.e. GIS shape files) or that all structures (drainages, under or overpasses) on linear transport infrastructure are being considered and adapted as potential wildlife crossing structure. For the rest of the countries this is an on-going process.

Regarding the 44% of the countries, the respondents also stated that they have already established a process ensuring the efficient participatory engagement of the key- stakeholders and outreach to the general public during all phases of the transport project development (from the early planning, to construction, operation and maintenance), fostering also collaboration with key stakeholders which would assume “involvement” or “fundamentally collaborated” roles, while for the rest 56%, this is still in process,

since efficient engagement of key stakeholders is encouraged by authorities/official responsible bodies by setting up open consultation committees / working groups.

Moreover, according to the experts input, half of the participating countries are currently developing an environmental monitoring of the National Transport Plan, based on relevant parameters related with biodiversity, ecological connectivity and Green Infrastructure status (e.g, Austria, Czech Republic, France and Switzerland. The other half stated not having such a procedure.

Finally, regarding the existence of a long-term evaluation process of the National Transport (Master) Plan and of a follow-up process, most countries were mentioned to be in progress of developing one (including, Austria, Czech Republic, France, Germany, Spain, Switzerland), mainly based on the evaluation and recording of lessons learned that are being made available to key-stakeholders, facilitating knowledge transfer by responsible bodies/authorities.

3.1.2 A European Union Law perspective

As described above, there is no specific way of integrating biodiversity protection requirements into national transport policy, i.e. at the stage of determining policy choices and defining concrete actions in this framework. Indeed, EU acts relating to this policy do not explicitly take into account the need to protect biodiversity. However, this does not mean that these requirements are not imposed. As any EU policies, the principle of integration, enshrined in Article 11 of the Treaty on the Functioning of the European Union (TFEU), requires the integration of environmental protection requirements [TFEU, 2007]. Moreover, in the perspective of the implementation of the Green Deal, the actions and policies developed at EU level cannot be in a direction that would impact adversely on the environment. In this respect, it is clear that the objectives of the European Biodiversity Strategy must be taken into account. However, these objectives, as defined by the European strategy, are not binding, and the EU legislator, when defining the rules governing transport policy, is free to determine whether or not to integrate them into a binding instrument. Therefore, assessing the integration of biodiversity requirements into national transport policy requires a more detailed analysis of the instruments of integration, mainly environmental assessment legislation, and the conditions for their implementation. The European rules are relatively ancient, and their development was based on the existence of such mechanisms within national systems. So, the rules are known, and the conditions of their implementation have been defined to some extent by the European judge.

By virtue of their very purpose, environmental assessment rules are intended to integrate biodiversity conservation imperatives. However, it seems interesting to assess the definition and implementation of such a mechanism in order to analyse the extent to which environmental assessment makes it possible to integrate and contribute to the achievement of the objectives of the European Biodiversity Strategy, in particular the control of land artificialisation, the restoration of ecosystems or the promotion of forests, in the context of the development of transport policies and infrastructure.

3.1.2.1 Transport infrastructures fall within the scope of legislation imposing environmental assessment

As noted above, the implementation of environmental assessment is, as EU law currently in force, the privileged means of ensuring the integration of the objectives of the European Biodiversity Strategy. The purpose of environmental assessment is to ensure that the environmental impact of a project is examined before its authorization, if so. The development of transport infrastructure projects (or plans and programs) is subject to environmental assessment if their characteristics bring them within the scope of European legislation.

3.1.2.2 Imposing environmental assessment on transport infrastructure projects on the ground of Habitats Directive

Firstly, transport infrastructure projects (or plans/programmes) may be subject to environmental assessment when they fall within the scope of the Habitats Directive, and also of the Birds Directive, especially on the ground of Article 6. The Habitats Directive is a key instrument for the conservation of biodiversity, especially of threatened species and areas requiring enhanced protection. In addition to zoning, the protection regime is based on the obligation in principle to carry out a prior assessment of any project which is “likely to have a significant effect” on protected areas and species. This assessment is then carried out in accordance with the plans and programs Directive¹³ and the projects Directive, depending on the nature of the operation at stake. Thus, a transport infrastructure project may fall within the scope of this assessment requirement in one way or another. Obviously, most transport infrastructure projects (plans/programs) can be considered as likely to have a significant effect... Thus, if a transport infrastructure project is located, either partially or totally, in a Natura 2000 classified area, it will be subject to an environmental assessment.

3.1.2.3 Imposing environmental assessment on transport infrastructure projects on the ground of Environmental Assessment Directives

The approach of the 2001 Directive (plans and programmes) and the 2011 Directive (projects) is slightly different from Habitats Directive perspective. Under these Directives, not all projects, plans or programmes are subject to mandatory environmental assessment. The Directives provide for the implementation of the environmental assessment obligation in two stages. According to Directive 2001/42, Article 3 provides for mandatory environmental assessment for “all plans and programmes, (a) which are prepared for agriculture, forestry, fisheries, energy, industry, transport, waste management, water management, telecommunications, tourism, town and country planning or land use and which set the framework for future development consent of projects listed in Annexes I and II to Directive 85/337/EEC ». Then, under Article 3 (3) and (4), the Member States may impose environmental assessment to plans and programs “which determine the use of small areas at local level and minor modifications to plans and programmes” if that they are likely to have significant environmental effects.

According to Directive 2011/92,¹⁴ projects listed in Annex I are subject to mandatory environmental assessment. For Annex II projects, Member States have a margin of discretion to decide whether the project should be subject to environmental assessment. However, secondary legislation limits the Member States' freedom of choice, since they must decide whether there is a need for the assessment in accordance with a methodology laid down in the provision, either on the basis of a case-by-case examination or on the basis of the prior determination of thresholds or criteria set by the Member State itself.¹⁵

According to Annex I of the 2001 Directive, the following transport infrastructure projects are automatically subject to environmental assessment (points 7 and 8): construction of lines for long-distance railway traffic and of airports⁽²⁾ with a basic runway length of 2 100 m or more; construction of motorways and express roads; construction of a new road of four or more lanes, or realignment and/or widening of an existing road of two lanes or less so as to provide four or more lanes, where such new road or realigned and/or widened section of road would be 10 km or more in a continuous length, Inland waterways and ports for inland-waterway traffic which permit the passage of vessels of over 1.350 tones; trading ports, piers for loading and unloading connected to land and outside ports (excluding ferry piers) which can take vessels of over 1.350 tones.

The existence of thresholds based on size, length and volume of operation are intended to force the submission of "large" projects that are considered to have an impact on the environment due to their

¹³ Art. 3 (2) of Directive 2001/42.

¹⁴ See Art. 4.1 of Directive 2011/92/UE.

¹⁵ Art. 4.1 of Directive 2011/92/UE. See also for Directive 2001/42, Art. 3(5).

characteristics. The existence of such thresholds leads to automaticity, prohibiting any discretionary power, any margin of choice, which helps to strengthen the consideration of biodiversity protection issues in the context of transport infrastructure development.

Then, under Annex II, point 10 dedicated to transport infrastructures, refers to construction of railways and intermodal transshipment facilities, and of intermodal terminals (projects not included in Annex I); construction of airfields (projects not included in Annex I); construction of roads, harbours and port installations, including fishing harbours (projects not included in Annex I); tramways, elevated and underground railways, suspended lines or similar lines of a particular type, used exclusively or mainly for passenger transport. Therefore, for these projects, the States have a margin of discretion to subject them or not to environmental assessment. From this perspective, there is obviously a risk that this margin of discretion will be used in a way that limits the assessment obligations, and therefore potentially authorises projects without having analysed their environmental impact.¹⁶ The Directive itself, in Annex III, provides the criteria to be taken into account by the competent authorities when implementing the case-by-case method or determining the thresholds,¹⁷ taking into account the characteristics of the project, the location of the project and the characteristics of its potential impact.¹⁸

The judge has paid particular attention to the framework of the national authorities' margin of discretion when determining whether or not a project or programme/plan should be subject to environmental assessment. To this end, the procedural aspects of the implementation of the evaluation process have been further developed, in particular by imposing greater requirements on the administrative authorities involved in the process. Thus, a functional independence between the authority in charge of the environmental assessment, which must issue an opinion on the environmental assessment, on the basis of the file submitted by the petitioner, and the decision-making authority¹⁹ is required. The autonomy requirement also applies to the authority that has to assess the need for an environmental assessment in the context of the case-by-case procedure. The authority responsible for the environmental assessment of a plan or programme covered by Directive 2001/42²⁰ must be separated not organically but functionally from the authority responsible for the decision. Moreover, the environmental authority may be an administrative entity internal to the decision-making authority, provided that it is autonomous.

In addition, the submission of transport infrastructure projects to the assessment obligation is strengthened by a rather broad interpretation of the scope of the Annexes, and especially of the terms of Annex I, to the Directives (systematic obligation). In this respect, the interpretation of the concept of "construction" under Annex I, point 7(b) of the Directive is decisive. According to this provision, it is the construction of certain infrastructures that is subject to an automatic environmental assessment. The term 'construction' may refer to new projects, or it may be regarded as including changes to existing projects. The judge has adopted a broad interpretation, considering that the notion of 'construction' shall be interpreted as referring to the construction of works that did not previously exist or the modification, in the physical sense, of pre-existing works.²¹ Such a qualification can therefore be applied to the extension of a project, which is of such physical difference that it can be considered as a new construction. The

¹⁶ The case-law of the European Court of Justice related to this issue is quite important, see for example, ECJ, 10 June 2004, *Commission v Italian Republic*, C-87/02, ECLI:EU:C:2004:13; ECJ, 2 June 2005, *Commission v Italian Republic*, C-83/03, ECLI:EU:C:2005:339.

¹⁷ Art. 4.3 of Directive 2011/92/UE

¹⁸ CJUE, 21 March 2013, *Salzburger Flughafen GmbH v Umweltsenat*, C-244/12, ECLI: EU:C:2013:203. Concerning the extension of an airport, States may not rely on the criterion of the number of expected passengers (if such projects are likely to increase the number of air movements by at least 20 000 per year) when deciding whether to submit an Annex II project for assessment.

¹⁹ ECJ, 20 October 2011, *Department of the Environment for Northern Ireland v Seaport (NI) Ltd and Others*, C-474/10, ECLI: EU: C:2011:681.

²⁰ Article 3 (6) of Directive 2001/42.

²¹ ECJ, 24 November 2016, *Bund Naturschutz in Bayern e.V. and Harald Wilde v Freistaat Bayern*, C-645/15, ECLI:EU:C:2016:898, point 40: "It can hardly be disputed that a project for the refurbishment of pre-existing roads by civil engineering work on a significant scale, in particular by the construction of a tunnel, amounts to such an alteration, even if the works are to be carried out on the road's existing route and over a length of less than 10 km."

judge also considered that the doubling of an existing railway line, because of its significant impact on the environment, cannot be considered as a simple modification of an existing project,²² especially when the realisation of this project implies a new alignment of the tracks. Similarly, the fact that a section of new track concerns only two localities does not prevent it from being automatically subject to environmental assessment, insofar as this section is part of a long-distance project, a case covered by Annex I, point 7.²³ On the contrary, as long as there is no significant change in the nature of the project, the judge considered that a road development project of a section of less than 10 km does not fall under the obligation to submit to an impact assessment, even if it is an extension of an existing project. However, this does not prevent it from falling under Annex II, and therefore from being subject to the impact study requirement, upon the decision of the national authority.²⁴ Generally speaking, the European Court of Justice is vigilant with regard to the potentially perverse effects of thresholds. Because of the existence of such thresholds, the competent authorities may be tempted to 'chop up' projects, by breaking them up, in order to circumvent the thresholds and regain more freedom in decision-making, which would then no longer have to take into account the environmental impact of the project.

Finally, the European judge had to assess the qualification of "renewal of an operating consent", i.e. whether it should be considered as relating to a new project, and as such be subject to an environmental assessment. In *Brussels Hoofdstedelijk Gewest and others v. Vlaamse Gewest* case,²⁵ the Court held that "the renewal of an existing permit to operate an airport cannot, in the absence of any works or interventions involving alterations to the physical aspect of the site, be classified as a 'project' or 'construction'".²⁶ However, the national judge has "to determine, on the basis of the national legislation applicable and taking account, where appropriate, of the cumulative effect of a number of works or interventions carried out since the entry into force of the directive, whether that permit forms part of a consent procedure carried out in several stages, the ultimate purpose of which is to enable activities which constitute a project within the meaning of the first indent of point 13 of Annex II, read in conjunction with point 7 of Annex I, to the directive to be carried out".²⁷ If no previous environmental impact assessment of such works or interventions was enforced at the previous stage of the authorisation process, then an assessment would be required.

The interpretation of the European Court of Justice makes it possible to systematically submit to environmental assessment the development of pre-existing projects, because this modifies them in depth, or because of the way they are built. This approach makes it possible to take account of all the characteristics of the structure concerned, and not just its length or the maintenance of its original mapping²⁸. Similarly, while interpreting the provisions of Annex II, attention is paid to the options and criteria used to decide whether a project, plan or programme should be subject to environmental assessment.

Submitting a project to environmental assessment is therefore a first step to ensure that the requirements of biodiversity protection are taken into account when deciding upon transport infrastructures development. This is an essential, but not sufficient step. Indeed, the assessment of the integration of the objectives of the European biodiversity strategy also depends on the scope of the impact analysis.

²² ECJ, 16 September 2004, *Commission v Kingdom of Spain*, C-227/01, ECLI:EU:C:2004:528.

²³ *Idem*

²⁴ ECJ, 24 November 2016, *Bund Naturschutz in Bayern e.V. and Harald Wilde v Freistaat Bayern*, C-645/15, ECLI:EU:C:2016:898.

²⁵ ECJ, 17 March 2011, *Brussels Hoofdstedelijk Gewest and Others v Vlaamse Gewest*, C-275/09, ECLI:EU:C:2011:154.

²⁶ Point 38.

²⁷ *Idem*.

²⁸ ECJ, 24 November 2016, *Bund Naturschutz in Bayern e.V. and Harald Wilde v Freistaat Bayern*, C-645/15, ECLI:EU:C:2016:898.

3.1.3 The substantial scope of the impact assessment and conditions for its enforcement

Generally speaking, the purpose of an impact assessment is to evaluate environmental impact. Obligations concerning the precise content of the impact assessment are specified by the relevant secondary legislation. These obligations are related to various points, in order to safeguard its relevance in such decision-making process, as described below.

3.1.3.1 The moment of the impact assessment

The environmental assessment must be enforced before the decision is taken.²⁹ This implies, among other things, that the assessment cannot be based on reviews and studies carried out at a later stage, namely after the authorisation was adopted.³⁰ It must therefore be fully carried out before the decision is taken, otherwise the assessment may be considered incomplete and deficient. Otherwise, according to the wording of the Court, it “would be tantamount to declining to assess not only the impact of the definitive plan or project but also the impact of those measures themselves on that site, thereby disregarding the objectives of Article 6 of that directive”.³¹

3.1.3.2 The assessed impacts

As regards the content of the impact assessment, it must be “appropriate”. According to the wording of the Directive, and the interpretation given to it by the EU court, this requirement implies that it must provide a clear picture of the adverse effects.³² Thus, a central issue is the sufficiency of the impact study, and the degree of requirement and precision of the analysis. This degree is determined by the scope of the impacts measured in the study to be submitted by the developer.

First of all, the subject of the environmental assessment is defined by Article 3 of Directive 2011/92 as the description and evaluation of the direct and indirect effects of a project on the following factors: human beings, fauna and flora; soil, water, air, climate and landscape; material assets and cultural heritage; and the interaction between the factors referred to in points a), b) and c). On the ground of Directive 2001/42, Annex I (f) refers to “biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors”. Thus, elements of biodiversity are included. In the implementation of the environmental assessment process applicable to transport infrastructure projects, plans or programmes, it is imperative to account for and assess the impact on biodiversity.

Second, in order to improve the impact assessment, or to ensure the consistency and effectiveness of the impact assessment, «the developer is obliged to supply information that expressly addresses the significant effects of its project on all species identified”³³. This information must therefore be provided to public authorities “in an appropriate manner”, to enable them to carry out an environmental impact assessment of the project. Thus, the judge noted that an appropriate assessment must “on the one hand, catalogue the entirety of habitat types and species for which a site is protected, and, on the other, identify and examine both the implications of the proposed project for the species present on that site, and for which that site has not been listed, and the implications for habitat types and species to be found outside the boundaries of that site, provided that those implications are liable to affect the conservation objectives

²⁹ Art. 4 Directive 2001/42.

³⁰ ECJ, 16 July 2020, WWF Italia Onlus and Others v Presidenza del Consiglio dei Ministri and Azienda Nazionale Autonoma Strade SpA (ANAS), C-411/19, ECLI:EU:C:2020:580, point 50: “It follows that the assessment under Article 6(3) of the Habitats Directive cannot properly be carried out on the basis of examinations and studies carried out subsequently. In consequence, wherever it is found necessary to supplement an assessment of the implications of a plan or project on an area of special conservation or to conduct more in-depth assessment, that assessment cannot be regarded as the assessment under Article 6(3).”

³¹ *Idem*, point 56.

³² ECJ, 15 December 2011, Commission v Kingdom of Spain, C-560/08, ECLI:EU:C:2011:835

³³ ECJ, 7 November 2018, Brian Holohan and Others v An Bord Pleanála, C-461/17, ECLI:EU:C:2018:883, point 59.

of the site”³⁴. Consequently, the content of the impact study, as defined, involves an assessment of the effects on biodiversity, and as such allows a fairly complete integration of the objectives defined within the European strategy on biodiversity. Concerning the degree of precision of the impact assessment, Article 5 of Directive 2011/92 provides for that the information including in the impact assessment are those “that may reasonably be required taking into account current knowledge and methods of assessment”. However, the available information shall be sufficient to ensure the quality and the relevance of the assessment. Indeed, it is required that the impact study contain “complete, precise and definitive findings and conclusions, such as to dispel any reasonable scientific doubt as to the effects of the planned works on the protected site concerned”.³⁵ Here, another fundamental question is the consideration of the cumulative effect. Indeed, while assessing the environmental impact, it is imperative to take into account the indirect and cumulative effects of the project with other projects.³⁶ Similarly, the competent authorities should take into account the projected increase in activity at an airport when considering the environmental impact of changes to its infrastructure to accommodate the increased activity.³⁷ However, the requirement for impact assessment is limited to that of the project in question, and should not include the possible impacts of works that are subsequently authorised.³⁸

In order to provide for an appropriate assessment, the project must be sufficiently defined, the competent authority shall not authorise a plan or project which leaves the developer free to determine certain parameters relating to the construction phase at a later stage, such as the location of the construction site and transport routes, in order to make sure that all the parameters of the project will not affect the integrity of the site.³⁹

The conditions for implementing the impact study are therefore demanding, in terms of taking into account the impacts that shall be considered and assessed. In practice, however, a difficulty may lie in the quality of the information provided and its ability to really reflect the current and future impact of the project on the environment. Clearly, the data shall be able to be produced or exist to serve as a basis for assessing the impact of the project. Here, Directive 2001/42 provides for specific requirements concerning the level of required information in case of assessment of plans or programmes. Article 5(3) of the Directive. On one hand, it encourages the use of information produced in other decision-making processes. On the other hand, the authorities consulted can comment on the level of detail of the information required.⁴⁰

3.1.3.3 Authorisation of infrastructure projects/plans and programmes despite identified impacts

Another relevant point to assess the integration of biodiversity protection requirements into transport infrastructures development is related to the consequences of environmental assessment, especially in cases where the assessment results in a finding that the project or plan or programme has a negative impact on the environment. This point is essential in order to assess whether these requirements have been taken into account effectively or, on the contrary, whether the authorities still have a margin of discretion, which would allow them to ignore these requirements, or at least to set them aside, by authorising the project despite this. On this point, a distinction should be made between projects or programmes falling under the Habitats (and Birds) Directive and those falling under the classic regime of the 2001 and 2011 Directives. In both cases, it appears that the authorities still have the possibility of

³⁴ ECJ, 7 November 2018, Brian Holohan and Others v An Bord Pleanála, C-461/17, ECLI:EU:C:2018:883, point 40.

³⁵ ECJ, 16 July 2020, WWF Italia Onlus and Others v Presidenza del Consiglio dei Ministri and Azienda Nazionale Autonoma Strade SpA (ANAS), C-411/19, ECLI:EU:C:2020:580, point 73.

³⁶ ECJ, 15 December 2011, Commission v Kingdom of Spain, C-560/08, ECLI:EU:C:2011:835

³⁷ ECJ, 28 February 2008, Paul Abraham and Others v Région wallonne and Others, C-2/07, ECLI:EU:C:2008:133.

³⁸ ECJ, 24 November 2016, Commission v Kingdom of Spain, C-461/14, ECLI:EU:C:2016:895

³⁹ ECJ, 7 November 2018, Brian Holohan and Others v An Bord Pleanála, C-461/17, ECLI:EU:C:2018:883

⁴⁰ Art. 5(3) of Directive 2001/42 : “ 3.Relevant information available on environmental effects of the plans and programmes and obtained at other levels of decision-making or through other Community legislation may be used for providing the information referred to in Annex I. 4. The authorities referred to in Article 6(3) shall be consulted when deciding on the scope and level of detail of the information which must be included in the environmental report. »

authorising a project when the impact on the environment is significant. However, the principle is that a project can only be authorised, in addition to compliance with the conditions that will be examined below, if a full assessment of the effects of the project has previously been carried out. Indeed, by virtue of the precautionary principle, which naturally applies, if there are uncertainties as to the absence of adverse effects on the integrity of the site concerned, the national authority is obliged to refuse authorisation for the plan or project.⁴¹ Thus, when the final decision is taken on whether to authorise the project, “there must be no reasonable scientific doubt remaining as to the absence of adverse effects on the integrity of the site in question”⁴².

The principle is that, despite negative findings, a project can be authorised. However, the competent authority is not completely free to decide. Its discretion is limited by different obligations.

3.1.3.4 The need for an overriding public interest for projects/plans in Natura 2000 areas

While Natura 2000 Directive is a major instrument for biodiversity conservation in the European Union, the definition of protected areas under the directives does not lead to a closed area preventing all human activities and projects. However, such an option must, in the line of the Directive, be exceptional. This is why public authorities are particularly constrained by the requirements of the Directive.

The framework applicable to national authorities when they have to decide on projects or plans, and in particular for the development of transport infrastructure, is grounded on Article 6 of the Directive. The decision-making process must follow a strictly established chronology, which aims to guarantee the quality and effectiveness of the assessment. Indeed, compliance with this chronology tends to ensure that the impacts of the project are properly assessed and taken into account. It is therefore an obligation for public authorities to carry out a precise and thorough examination.⁴³ The conditions laid down in Article 6 of the Directive, especially §3 and §4, must be strictly complied with, as an authorisation can only be granted in this case⁴⁴. In *Brian Holohan and others v. An Bord Pleanála* case, the judge clarified the steps in the reasoning to be followed by the national authorities. Article 6 of the Directive distinguishes between two stages. “The first requires the Member States to carry out an appropriate assessment of the implications for a protected site of a plan or project when it is possible that the plan or project will have a significant effect on that site. The second stage, which occurs following the aforesaid appropriate assessment, allows such a plan or project to be authorised only if it will not adversely affect the integrity of the site concerned”.⁴⁵ Then, the Court stressed that, on the ground of Article 6(3), “the competent national authorities must in principle refuse to agree to a plan or project that risks adversely affecting the integrity of the site concerned.” But, “Notwithstanding its negative implications for that site, the plan or project in question may nevertheless be carried out, by way of derogation, in the circumstances laid down in Article 6(4) of that directive, if it is necessary to do so for imperative reasons of overriding public interest.”⁴⁶ Therefore, the characterisation of a major public interest allows the authority to authorise a project only in exceptional circumstances.

Thus, the notion of "overriding public interest" is central. According to the terms of Article 6, economic, social, landscape, historical and cultural interests are taken into account, bearing in mind that in the case of a project impacting a special protection area or a special conservation area inhabiting a priority space or species, economic interest alone cannot justify authorisation of the project. Furthermore, a project or plan that affects the integrity of such a site or species cannot be authorised, particularly when there is a

⁴¹ ECJ, 26 October 2006, *Commission v Portuguese Republic*, C-239/04, ECLI:EU:C:2006:665.

⁴² ECJ, 26 October 2006, *Commission v Portuguese Republic*, C-239/04, ECLI:EU:C:2006:665, point 24/

⁴³ ECJ, 21 July 2016, *Hilde Orleans and Others v Vlaams Gewest*, C-387/15 et C-388/15, LI:EU:C:2016:583

⁴⁴ ECJ, 15 May 2014, *Briels e.a.*, C-521/12, EU:C:2014:330 ; ECJ, 11 April 2013, *Peter Sweetman and Others v An Bord Pleanála*, C-258/11, ECLI:EU:C:2013:220.

⁴⁵ ECJ, 16 July 2020, *WWF Italia Onlus and Others v Presidenza del Consiglio dei Ministri and Azienda Nazionale Autonoma Strade SpA (ANAS)*, C-411/19, ECLI:EU:C:2020:580, point 34.

⁴⁶ ECJ, 16 July 2020, *WWF Italia Onlus and Others v Presidenza del Consiglio dei Ministri and Azienda Nazionale Autonoma Strade SpA (ANAS)*, C-411/19, ECLI:EU:C:2020:580, point 37.

risk “of lasting harm to the ecological characteristics of sites which host priority natural habitat types. That would particularly be so where there is a risk that an intervention of a particular kind will bring about the disappearance or the partial and irreparable destruction of a priority natural habitat type present on the site concerned”⁴⁷

Furthermore, at this stage of the decision-making process, it is important to stress that the possibility of providing reasons of overriding public interest prevailing over the protection of a special area of conservation is not subject to the condition that the damage to the integrity of the area can be sufficiently mitigated.

3.1.3.5 The obligation to consider alternative solutions and to provide for compensatory measures

First of all, in the case of a negative assessment, the authority shall examine alternative solutions. The latter were presented by the developer when submitting the project and the impact assessment. Indeed, the petitioner is under an obligation to consider alternatives to the project at the project submission stage. He/she must then provide for “an indication of the main reasons for his choice, taking into account the environmental effects”.⁴⁸ At the project submission stage, only an “outline” of these alternatives is required, there is no requirement to carry out an impact assessment comparable to that carried out for the main project.

Here, the comparison of the project initially submitted with the alternative projects must not be limited to economic costs. Thus, the presentation of alternative solutions contributes to the formulation of the reasons for the choice of the project submitted, which will then facilitate the assessment made by the competent authorities.

In the case of a project developed in a Natura 2000 area, the assessment of the existence of an overriding public interest is here closely linked to the examination of alternative solutions. Indeed, while of balancing the interests at stake, “justified adverse effects on the integrity of a special area of conservation may only be agreed if they are genuinely unavoidable, that is to say, where there are no alternative solutions”⁴⁹.

Secondly, a project with a negative impact on the environment will only be authorised if compensatory measures are provided for. The offset operation is then seen as a means of finding a way to reconcile the issues of development and biodiversity conservation, in a broader approach. The compensatory measures shall be designed after the initial definition of the project. Indeed, “the very nature of compensatory measures is reason for their being identified once the negative implications of a plan or project for the site concerned have been assessed. Those measures are intended to produce effects of a different order, including after the plan or project at issue has been completed, in order to ensure or restore the coherence of the Natura 2000 European ecological network as a whole, taking into consideration the harm that the plan or project will inevitably cause to the integrity of the special area of conservation concerned”⁵⁰. The consideration of compensation measures by the competent authority should therefore not take place during the assessment phase. They can’t be used at the assessment stage, as a way to mitigate the negative effect of a project/plan. However, they may be considered at the same time as the decision to approve the project, despite the finding of negative impact.

⁴⁷ ECJ, 15 May 2014, *Briels e.a.*, C-521/12, EU:C:2014:330 ; ECJ, 11 April 2013, *Peter Sweetman and Others v An Bord Pleanála*, C-258/11, ECLI:EU:C:2013:220, point 43.

⁴⁸ Article 5 of Directive 2011/92.

⁴⁹ ECJ, 16 July 2020, *WWF Italia Onlus and Others v Presidenza del Consiglio dei Ministri and Azienda Nazionale Autonoma Strade SpA (ANAS)*, C-411/19, ECLI:EU:C:2020:580, point 40/

⁵⁰ ECJ, 16 July 2020, *WWF Italia Onlus and Others v Presidenza del Consiglio dei Ministri and Azienda Nazionale Autonoma Strade SpA (ANAS)*, C-411/19, ECLI:EU:C:2020:580, point 62.

3.1.3.6 Procedural rights as a means of strengthening the consideration of biodiversity

As with any environmental issue, the decision-making processes applicable to the development of transport infrastructure projects are increasingly being proceduralised through the recognition of procedural administrative rights for the benefit of individuals. These rights do not directly affect the substance of the decision, but influence it indirectly. They have been strengthened following the ratification of the Aarhus Convention [UNECE 1998] by the European Union, reinforcing the consideration of the three pillars of environmental democracy. The promotion of these rights contributes to framing the margin of discretion of the competent authorities when they have to decide on transport infrastructure projects and plans. Indeed, promoted in the context of the Aarhus Convention, these rights are intended to strengthen environmental protection, by helping for the consideration of environmental interest during the decision-making process. In this sense, they can be considered as a way of taking greater account of biodiversity conservation requirements, whether they are implemented upstream or downstream of the authorisation decision.

First of all, the right to environmental information imposes on Member States ensure the greatest access as possible, subject to the exceptions provided for, to environmental information [European Parliament, 2003]. Since it is not a regulation, the national authorities have some margin of discretion, especially with regard to the definition of the scope of the exceptions, which are, once again and in a classic manner, standard notions. However, according to the case law of the Court of Justice, a strict interpretation of the exceptions applies, in order to ensure the widest possible access to environmental information. The right of access to information plays a key role in the control of authorities when they take decisions which have an impact on the environment. Knowing what information the authorities have had or have at their disposal when they make their decision helps to assess the quality of the decision, and ultimately to ensure that biodiversity requirements are taken into account. In this respect, the elements and information related to the impact assessment must be made available to the public in a timely manner, including the content of the final decision.⁵¹

The right to public participation is also explicitly provided for⁵². Organised in due time, public participation in the decision-making process may be decisive in attempting to discuss the choices made in the decision-making process, or at least to influence them, once again in such a way as to ensure that environmental protection issues are taken into account. There is an obligation in principle to organise public consultation. Here again, the European Court of Justice, through its case law, has sought to guarantee the effectiveness of the right to participation. The national authorities shall ensure that participation would be organized in due time, that its results would be duly taken into consideration. Obviously, the national authorities are not bound by the expressed views and opinions. However, they are under a duty, noticeably through the enforcement of the obligation of motivation of their decision, to explain how they considered them. Furthermore, a remedy at national level shall be available to challenge, if necessary, the final decision, in case the participation process has not been effective.

Finally, and in accordance with the third pillar of the Aarhus Convention, access to justice against decisions with an impact on the environment must be guaranteed both in relation to decisions of the European Union institutions and in relation to national decisions. If at the European Union level the violation of the Aarhus Convention has been noted, the Union judge, despite the absence of a harmonisation process at the European level, has also developed a case law aiming to guarantee the effectiveness of access to justice at the national level. Thus, members of the public affected by a project must be able to challenge a decision, before the competent national courts, if this violation directly concerns them. An important issue has been to ensure access to justice for NGOs. Insofar as they cannot

⁵¹ See Art. 7 of Directive 2001/42; Art. 9 of Directive 2011/92; ECJ, 15 December 2011, *Commission v Kingdom of Spain*, C-560/08, ECLI:EU:C:2011:835, point 112. "the fact that a Member State publishes the environmental impact statement does not replace the obligation laid down in Article 9 of Directive 85/337/EEC to inform the public of the authorisation or refusal to carry out the project".

⁵² Art. 6 of Directive 2011/92 ; Art. 6 of Directive 2001/42.

claim an infringement of their own interests, their access to the courts and the admissibility of their claims is more complex. Pursuant to the EU case law, any barriers that NGOs may face at national level when they want to challenge an authorisation decision, noticeably transport infrastructure projects, shall be withdrawn. Another difficulty may exist within the Member States, and the Court of Justice has had to rule on this issue. It concerns the national practice of authorising a project by means of a legislative act, usually justified by overriding reasons of general interest. The legislative nature of the act may be an obstacle to go to the judge, which, usually, is only competent to hear actions concerning administrative decisions. According to the Court is acceptable, only if such a procedure does not lead to the exclusion of any possibility of appeal⁵³.

3.1.4 Alignment of national transport legislation with the EU Strategies

The first important finding of the study is that the definitions of green infrastructure vary greatly from country to country. In general, green infrastructure is viewed much more narrowly in national definitions.

In France, for example, this question is mainly focused on ecological continuities, whereas in Italy, it is considered much more broadly, in a way that is closer to the definition envisaged by the European Commission. And it is likely that this finding of differences in definitions is also generalizable to countries that were not concerned by the study. In general, the approach around green infrastructure is envisaged through the establishment of national ecological networks. Member countries have an approach focused on the protection and enhancement of biodiversity, notably through Natura 2000 areas and protected areas. Although biodiversity is an integral part of the vision advocated by the European Commission, it must be considered in a broader context, including the enhancement of ecosystem services provided by natural environments.

It is therefore distinct from the European Commission's approach, which is much broader. The main problem with this phenomenon is that it limits the development of green infrastructure legislation. Indeed, States and regions consider that they already take into account green infrastructures. Only Italy has considered green infrastructure in a broader sense, with differences in application across Italian regions and cities. This is the country where green infrastructure seems to be the most developed in the study, since initiatives in this direction have been multiplying since the early years of 2010, which is not necessarily the case in the other countries studied.



Next, we need to look at the transport and environmental authorities in the countries studied, which are therefore the ones that ensure the implementation (or not) of green infrastructure.

Regardless of the organization, the countries studied have specific authorities dedicated to transport and environmental issues. But these authorities are distinct, usually with a Ministry of Ecological Transition or Environment and a Ministry of Transport. The countries studied also have regulatory authorities for transport and biodiversity, responsible for ensuring the proper functioning of transport networks and compliance with environmental standards. Functionally, this distinction between environmental and transport bodies could slow down the creation of green transport infrastructure, since transport departments do not always have the same issues to deal with as environmental departments. Although they are required to incorporate environmental requirements into their projects, this is not necessarily the priority for them.

⁵³ ECJ, 18 October 2011, Antoine Boxus and Willy Roua, C-128/09, ECLI:EU:C:2011:667, point 47: "It is for the national court to determine whether those conditions have been satisfied. For that purpose, it must take account both of the content of the legislative act adopted and of the entire legislative process which led to its adoption, in particular the preparatory documents and parliamentary debates."

Where there are disputes over transport and environmental matters, they are dealt within all countries by the administrative court. In cases where a transport infrastructure project does not comply with legal requirements (particularly if it causes too much damage to the environment), it is then cancelled. When such decisions are taken, judges rely on national law, and on European law (national environmental law being very largely based on European law). When making decisions, judges must generally balance economic, social and environmental interests. Although legislation generally frames this balancing, it is often in the economic interests that take precedence, direct economic benefits being valued more highly than potential long-term benefits.

However, in recent years, we have seen in a number of the countries studied that environmental issues are increasingly taken into account in the decisions of judges.

As regards the application of European environmental law in the field of green infrastructure, most of the countries studied have difficulties in ensuring the proper application of this law, with wide disparities between countries. Some countries have thus succeeded in integrating these issues into domestic legislation, as is the case in Italy for example. But others, such as Bulgaria, find it extremely difficult to include these new considerations in their national standards. Finally, some countries have incorporated these issues into their domestic law, but very belatedly (such as Spain, which developed a green infrastructure strategy in 2021). Most national environmental standards come from European law, as well as from international conventions signed by States (Aarhus, Espoo, etc.), especially in countries where public opinion is little focused on environmental issues (often due to a lack of awareness of these issues). More than the specific application of green infrastructure standards, it is the proper application of environmental law that is the problem. Implementation difficulties differ between countries, with different levels of intensity.

For example, if Sweden has certain difficulties in the application of the Birds Directive on selectivity issues, in Spain it is the whole application of environmental law that is the problem. This translates into more or less frequent European convictions depending on the country. Sometimes, the problem is the transposition of the norms, which is carried out without any real thought, and thus poorly adapted and adaptable to the economic and social realities of the countries (as is the case in Bulgaria). In other cases, we see that environmental standards conflict with each other. This is particularly the case in Germany, where the development of renewable energy production infrastructure sometimes comes into conflict with standards for the protection of biodiversity and natural environments. These differences are generally explained by strong differences in awareness of environmental issues by public opinion, which results in less consideration of these issues by the States and the regions themselves.

On the transport issue, this integration of environmental considerations is mainly based on the environmental impact assessment and impact assessment procedures (which take different names from country to country) of plans and projects. Such assessments may determine whether or not transport infrastructure projects are authorised, based on the proportionality of the damage caused to the environment in relation to the benefits derived from the projects.

However, these impact studies sometimes have a limited consideration of biodiversity (Spain, etc.), even if generally the fact that an area is classified as Natura 2000 is very binding for the authorization of a project (for example in Germany). In addition, there are exceptional regimes, which allow a project to be authorized despite its damage to the environment and biodiversity for reasons of major public interest, which can be justified by various arguments: for example, security issues. This situation sometimes leads to the authorization of highly controversial environmental projects, in total contradiction with the objectives pursued by green infrastructure. More generally, it is possible in several countries to make «adjustments» to adapt the project and to exclude certain provisions. In addition, it is sometimes found that impact studies are carried out by special procedures for certain transport infrastructure projects, limiting the scope for environmental protection in relation to these projects. This requires, in particular, faster procedures, which results in less consideration of environmental considerations than in

conventional procedures. It should also be noted that there are many gaps in the implementation of impact studies, which are sometimes characterized by poor quality, and which therefore take little account the potential damage to the environment caused by the projects concerned.

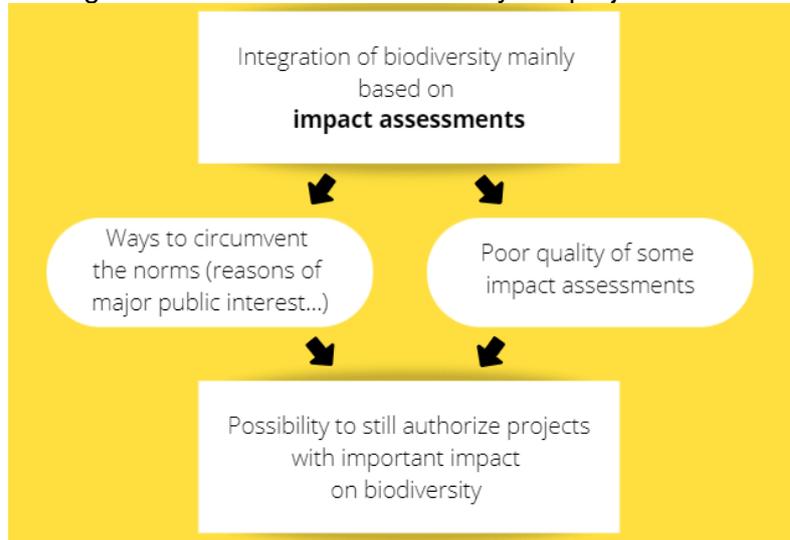


Figure 9: Integration of biodiversity based on impact assessments.

Despite these difficulties, there are good initiatives, such as in Sweden, where the implementation of internal regulations to address biodiversity adaptation needs has improved impact assessments, and thus the consideration of the environment.

It should also be noted that similar projects have been incorporated into national legislation, but do not explicitly use the term “green infrastructure”. For example, in France, the concept of ecosystem service, which recognizes that biodiversity and the variability of natural environments make it possible to reap benefits both for human beings and for the environment in general. Other initiatives of this kind can be reported in other countries. We can therefore say that European legislation on green infrastructure is being taken into account, but indirectly. Some laws do not explicitly use the term “green infrastructure”, but require the establishment of equivalent structures and networks, as for some development schemes in Belgium for example, or in Spain in a 2021 Strategy.

Overall, however, the green infrastructure requirements have not been fully integrated in most of the countries studied. This integration is underway, or has been achieved through guidelines or “soft law”, which are not legally binding. This type of integration is problematic because it severely limits the potential development of green infrastructure in member countries.

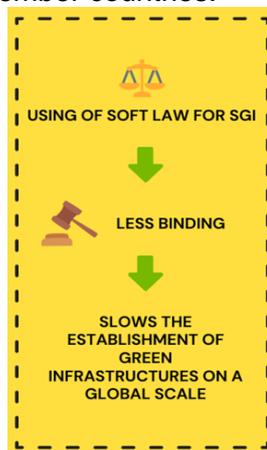


Figure 10: Binding restrictions of soft laws

This shows that there are a number of legal decisions that were unfavorable to biodiversity when creating or expanding transport infrastructure, with sometimes irreversible damage to the environment. But despite this negative finding, it should also be noted that there are some positive decisions, which have tended to multiply since the adoption of the Green Infrastructure Strategy in 2013. For example, a decision of the Court of Lazio in Italy in 2021 found that the fact that a federal road extension was cheaper to justify a “compelling public interest reason”. So environmental interests seem to take precedence over economic interests.

3.2 Discussion and next steps

Concerning the integration of green infrastructures, it can therefore be said that there are delays in the implementation of the European Union’s environmental requirements for transport infrastructure, and that green infrastructure is not yet fully integrated into national policy and legislation. But gradually, and sometimes implicitly, these requirements are enshrined in national laws and respective policies, and seem to be becoming widespread in EU Member States and other European countries (e.g., Switzerland). Initiatives such as those in Italy are particularly promising. In order to take better account of these, it would probably be necessary to agree on a broader definition of green infrastructure, integrating ecosystem services, and not only to focus on the biodiversity aspect of these. This is generally the case at present.

It can therefore be said that the integration of biodiversity and green infrastructures into national legislation and policies has been started, but generally in a partial way, with many points to improve. As noted in this report.

It is regrettable that the issue of green infrastructure has been considered mainly around biodiversity issues, in a too restrictive way. While protecting biodiversity is an integral part of green infrastructure, it is only part of that question. Moreover, while Member States often consider green infrastructure in a more restrictive way, there are many gaps in the protection of biodiversity. We can note the gaps in environmental assessment, for example, which mean that the potential impacts of projects are not necessarily taken into account to an appropriate extent. Also, it is quite possible to achieve attacks on protected areas, the major reasons of public interest can have a rather broad definition (health, disproportionate costs, security, etc.). This means that sometimes controversial projects, which have had irreversible impacts on certain high-quality natural environments, have been carried out.

Finally, one of the main problems facing the Member States is not the absence of environmental legislation and policy, but its proper application.

One of the solutions to improve the consideration of European green infrastructure standards would therefore be to ensure greater control over the proper application of these standards, before potentially expanding the standards on the issue. In addition, environmental law is generally characterized by its complexity, which is a challenge for the effective application of this right in Member States. However, infrastructure standards are generally non-binding standards, and their failure to comply does not necessarily involve the responsibility of States in the event of misapplication.

Concerning the integration of biodiversity conservation objectives, the current EU legislation dedicated mainly to environmental assessment, offers interesting perspectives. Due to the philosophy of these instruments, as well as their legal value, environmental assessment, as defined in EU law, constitutes a preferred way to ensure that the objectives of biodiversity protection are taken into account. However, Member States retain an irreducible margin of appreciation, which may lead to insufficient consideration of these requirements.

Some indicative recommendations are proposed below to ensure that biodiversity-related imperatives are taken into account in greater depth:

- Development of methodologies to refine the impact analysis, to measure the impacts. At the same time, measurement tools are needed that take into account the impact of the project in the broad sense, on biodiversity at local, national, European and international level (in particular by taking into account the impact of the materials that will be used for the project).
- Production of data, ensure greater effectiveness of open data. Increased availability of data should facilitate the exchange of practices, the comparability of projects, and thus contribute to the emergence of common understandings, as well as promoting consideration of the European scale of the issues at stake.
- Deepening of the requirements in terms of the obligation to state reasons. The public authority should not be able to limit itself to the information provided by the developer.
- Deepening or adopting transversal European legislation regulating the protection of specific elements of biodiversity, following the example of the Water Framework Directive. One of the areas that seems to be relevant here is the issue of soil. This would include setting firm targets at EU level in terms of limitations on soil artificialisation. Similarly, cross-cutting legislation on forest protection will be essential in the future. The value of developing cross-cutting legislation, which will define requirements that will be applicable to transport infrastructure development in particular, is to help assert the importance of the interests to be protected, and to impose requirements that will have to be taken into account under the biodiversity impact assessment. There is a need for more precise objectives in terms of biodiversity conservation.
- Deepening of the regulation of the use of compensation and the evaluation of its real scope.
- Involvement of as many relevant stakeholders as possible from the very beginning of a project planning to make sure that biodiversity is included in the planning. To bring in nature issues at a later stage, complicates projects and willingness of planners.
- Constructive cross-sectoral cooperation based on consultation with experts and National Agencies.
- Simplification and clarification of public construction permitting legislation and respective policy.

However, various ways and alternatives could be explored for enhancing the policy/strategy alignment and maturity implementation in reconciliation with the EU SGI and ensuring ecological connectivity in infrastructure development and maintenance. This work is the focus of the next Task 5.1 report (D5.2: *Recommendations for policy/strategy harmonization*) that will be developed taking under consideration the findings of the work carried out so far (as presented in the current report), while dedicated experts' consultation (through the realisation of at least 2 Workshops) will also take place to enrich the existing outcomes and provide us with valuable input to conclude to specific recommendations towards relevant policy harmonisation. Important input will be also obtained by the outcomes of WP3 and more specifically of T3.1 on Gaps and Barriers to replicability and application of good practices to mainstream biodiversity and transport. This report will feed also into the BISON SRDA.

CONCLUSIONS

The current report (Deliverable 5.1: “*Status of national policy, legislation and implementation tools and recommendations for the integration of the EU SGI into transport infrastructure development*”) of the BISON project is the first deliverable produced in the context of WP5 and focuses on presenting the current status of alignment of the national transport policies and related legislation with the EU SGI.

In order to achieve an holistic overview of this alignment level of the provisions set by the EU SGI, but also by the EU Biodiversity Strategy, work was carried out with focus (a) on the analysis of respective literature sources and (b) but also to the consultation of representatives from various EU countries (mainly from EU Member States), covering the transport and the environmental and biodiversity sectors through 2 different questionnaires.

For this to be succeeded in a more comprehensive way, the work carried out was divided in to 2 parts regarding both the integration of SGI in the different national policies but also the legislation alignment of the EU countries to the EU Strategies and respective legislative actions. The outcomes of these 2 parts combined offer a general overview of the alignment level of the EU Member States to the EU relevant strategies in total.

The main finding that has occurred by this work carried out so far within T5.1 is mainly that currently there is no coherent situation throughout the EU Member States and countries. Although the integration of SGI and more respective policies, strategies and legislation actions has started, green infrastructure is not yet fully integrated into national policy and legislation. However, gradually, these requirements are enshrined in national laws and policies, and seem to be becoming widespread in EU Member States and other European countries (e.g., Switzerland). Some indicative recommendations for the facilitation of this process are also provided in this report.

This report will set the ground for the future Task 5.1 work, mainly integrating feedback but also additional input on the currently findings by external stakeholders (in dedicated consultation sessions) that will lead to the development of the recommendations for policy/strategy harmonization, included in D5.2 (Month 23). Both these reports D5.1 and D5.2) will feed into the SRDA.

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