

Roadmap on integrating ecological aspects in spatial planning policy contains: key areas for building capacity and inter-sectoral dialogue

Summary of national roadmaps' main findings

T4.1 Enhancing cross-sectoral cooperation at regional Carpathian level and beyond

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Summary of national roadmaps' main findings based on the national reports main findings

Part of the Deliverable T4.1 Enhancing cross-sectoral cooperation at regional Carpathian level and beyond

ConnectGREEN Project – “Restoring and managing ecological corridors in mountains as the green infrastructure in the Danube basin.” Danube Transnational Programme, DTP2-072-2.3

Project Partners: Romania: WWF Romania (Lead Partner); National Institute for Research and Development in Constructions, Urban Planning and Sustainable Spatial Development; Piatra Craiului National Park Administration; Austria: WWF Central and Eastern Europe; Czech Republic: Nature Conservation Agency; Silva Tarouca Research Institute for Landscape and Ornamental Gardening; Hungary: CEEweb for Biodiversity; Hungarian University of Agriculture and Life Sciences; Slovakia: Slovak Environment Agency; The State Nature Conservancy; Slovak University of Technology in Bratislava – SPECTRA Centre of Excellence of EU; Serbia: Institute of Architecture and Urban & Spatial Planning; National Park Djerdap

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Introduction

ConnectGREEN project (June 2018– October 2021) aimed to contribute to maintaining and improving ecological connectivity between natural habitats, especially between Natura 2000 sites and other protected areas of transnational relevance in the Carpathian ecoregion, namely in the Czech Republic, Hungary, Romania, Slovakia and Serbia. Partners from various fields of activity joined forces to increase the capacity for the identification and management of ecological corridors and to minimize conflicts between infrastructure development and wildlife conservation. ConnectGREEN fostered cooperation among nature conservationists, natural asset managers, spatial planners and decision makers at the local, national and regional level.

Within work-package 6 the involved partner countries Hungary, Serbia, Slovakia, Romania started an initiative to support the fitness check process of EIA/SEA Directive. The partners consider the as first step to be taken to provide “national roadmaps” are essential tools in further contributing to the reconciliation between conservation and spatial planning. Concrete steps with clear guidance will be additionally jointly developed with stakeholders from key sectors on how to best integrate ecological corridors into spatial planning. The partners started the distributions of these roadmaps especially among spatial planners who need to improve their overview related to ecological corridors by having not only translated information in their technical language, but also simple to follow and use tools. In this way, as also stated by spatial planners in various consultation meetings, concrete ways to integrate ecological corridors into spatial planning shall be more straightforward and effective. The roadmaps can be used as communication and advocacy tools to promote integrated policy and legislative approaches and to create the basis for improving the sectorial legislation.

During the development of these roadmaps several practical problems have been identified in connection with EIA processes related to infrastructure projects, which can influence the effective protection of ecological connectivity. Several suggestions have been formulated on the arising problems. In this document, the connection has been outlined between the European Union Directive on Environmental Impact Assessments (2014/52/EU) and the formulated suggestions based on national roadmaps, in some cases with formulating proposals for the amendment of the EIA Directive.

Based on the national roadmaps a detailed report on the possibilities to improve the EIA Directive was elaborated. The feasibility check is important in order to understand the chances to perform a fitness check and improve the EIA Directive, which is applied differently in the participating countries. It is needed to perform such an analysis of conflicts in relation to the EIA process for nature protection, especially concerning ecological corridors together with conservationists, representatives of businesses performing such assessments, of academia, protected areas, etc. The

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EIA assessments should be performed according to the same principles across the countries. The process of changing Directives is slow and complex, and needs thorough assessments, such as this document. This approach itself of raising awareness on the weaknesses and recommendations related to EIA processes among this target group is expected, to some extent, to improve the studies. However, for a greater impact, the improvement of the EIA Directive will be needed, which will be pushed on the EU's agenda with the occasion of programming of EU national and operational programmes which are in the revision phase. The programming process of these EU national and operational programmes (under the CAP and Cohesion Policy) creates the possibility and also the premises to raise the issue of improving the Directive with this occasion by contributing with input and recommendations both in written as well as by participating in the various consultation meetings that was organized by the partnership.

In short:

Why: The ConnectGREEN project identified gaps in regards to biodiversity-spatial planning legal framework, partly caused by the lack of proper understanding of the ecological connectivity concept by spatial planning actors and partly by missing pieces of legislation that should allow an easy integration of corridors into spatial planning systems.

What: The elaboration of an integrative roadmap for ecological-spatial planning policy and legal approach is needed to improve this situation, together with strengthening the cross-sectoral cooperation between conservation and spatial planning.

How: The roadmap has been built on the information collected (and materials elaborated) so far in the project, such as the State-of-the-Art Report, the GAP analysis report on the identification of the needs for improving the planning processes and tools, and other relevant information and materials from WP 3 and WP 5. It highlights the key areas for building capacity and inter-sectoral dialogue to enhance connectivity through coordinated policy mechanisms.

Workshops were organized in this respect, which will also be used for the joint development of the roadmap, so that it can be easily used by both initiated and non-initiated spatial planners in the topic of ecological connectivity.

For whom: The roadmap will be widely distributed among decision makers from both sectors, but especially spatial planners who need to improve their overview related to ecological corridors.

The roadmap will also be used as communication and advocacy tool to promote integrated policy and legislative approaches and to create the basis for improving the sectoral legislation.

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Material and references

This document is mainly based on the “National roadmaps on integrating ecological aspects in spatial planning policy” of Hungary, Romania, Serbia and Slovakia, including the main findings of presentations of the closing conference (International Conference, Visegrád, Hungary, 28-30 September 2021). Moreover, a questionnaire was sent to experts of each country (see **Annex 1.**), which has been filled out by Serbian, Hungarian and Slovak experts. Using all of this information, the main conclusions are presented and summarised in this document. The exact references are the followings.

Roadmaps

- Mészáros, Sz., Nagy, G., Weiperth, A., Filepné Kovács, K. (2021). Hungarian roadmap on integrating ecological aspects in spatial planning policy contains: key areas for building capacity and inter-sectoral dialogue. Output T4.1.4, ConnectGREEN project – “Restoring and managing ecological corridors in the mountains as green infrastructure in the Danube basin”. Ceeweb. 26 pp.
- Nenković-Riznić, M., Simonovic Alfirevic, S., Brankov, B., Krunić, N. (2021). Serbian roadmap on integrating ecological aspects in spatial planning policy contains: key areas for building capacity and inter-sectoral dialogue. Output T4.1.4, ConnectGREEN project – “Restoring and managing ecological corridors in the mountains as green infrastructure in the Danube basin”. 17 pp.
- Popescu I., Abrudan, A.M., Stanciu, C., Cosmoiu, D., Dan, R. și Papp, C.R. (2021). Roadmap for harmonizing and integrating environmental connectivity in the Romanian legal framework. Output T4.1.4, ConnectGREEN project – “Restoring and managing ecological corridors in the mountains as green infrastructure in the Danube basin”. WWF Romania, 15 pp.
- Staník, R., Finka, M., Čuláková, J., Pauditšová, E., Gelingerova, Z. (2021). Slovak roadmap on integrating ecological aspects in spatial planning policy contains: key areas for building capacity and inter-sectoral dialogue. Output T4.1.4, ConnectGREEN project – “Restoring and managing ecological corridors in the mountains as green infrastructure in the Danube basin”. 18 pp.

Presentations on Protected Areas – Cornerstones of Ecological Connectivity in the Carpathians and Beyond International Conference. Visegrád. Hungary, 29. September 2021.

- András Weiperth: Hungarian roadmap on integrating ecological aspects in spatial planning policy contains: key areas for building capacity and inter-sectoral dialogue.
- Marina Nenković-Riznić: Serbian roadmap on integrating ecological aspects in spatial planning policy contains: key areas for building capacity and inter-sectoral dialogue.
- Oana Popescu: Roadmap for harmonization and integration of ecological connectivity in the Romanian legislation and public policies.
- Rastislav Staník: Mainstreaming Ecological Connectivity into Policy – National Roadmaps and Recommendations for the improvements of the EIA/SEA Directive.

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- Szilvia Mészáros: ConnectGREEN's engagement in the EU EIA feasibility check with a focus on ecological corridors.

National legislation on ecological network

Legislation is not a sufficient, but a necessary tool of ensuring ecological connections. Basically, the ecological corridors – as the part of the ecological network – are regulated in all the four countries, see **Table 1**. Serbia has mapping problems with the designation of ecological corridors, in Romania this is an ongoing process nowadays, while Slovakia and Hungary have already designated them.

Table 1. Current national legislation on ecological network

	Legislation	Remarks	Ongoing processes / current tasks
Hungary	Regulated by law (Act CXXXIX/2018 on the Spatial Plan of Hungary and some of its priority regions)	This law includes provisions addressing e.g., the new lines of transport infrastructure network elements, which can be designated and located in a way that ensures the survival of the natural habitats of the core area, using technical solutions that do not block the functioning of ecological connections.	Within the project “Strategic Assessments supporting the long-term conservation of natural values of community interest as well as the national implementation of the EU Biodiversity Strategy to 2020” (project ID: KEHOP-4.3.0-VEKOP-15-2016-00001), Green Infrastructure subproject: the designation of planned ecological corridors is finished in order to improve ecological connectivity. Preparation of legislation is an ongoing process now.
Romania	Regulated by decree (Government Emergency Ordinance no. 57/2007)	Beginning with 2007 the ecological corridors were recognized in the environment legislation as being part of the ecological network of protected natural areas.	For the moment there are not clearly established and designated ecological corridors in Romania, being an ongoing process.
Serbia	Regulated by decree (Regulation about the ecological network, "Official Gazette of RS", No. 102/2010)	Implementation of this regulation solely depends on the specific investors, as well as road designers, planners and environmental experts in charge for EIA.	The first step should be mapping of all ecological networks for different wild species on the national level. Only with comprehensive database on the national level, Serbia could rethink the construction of the over and underpasses as it is obliged by national regulation.
Slovakia	Regulated by law (Act 543/2002 on landscape and nature protection), „Territorial Systems of Ecological Stability”	The ecological networks protection has got more into focus lately, as more documents are being elaborated on nature and landscape protection, but these documents are financially underfunded, overall, it is not managed in a unified and systemic manner on national level.	In practice, it is necessary to harmonise documents in connection with ecological network, such as nature, biodiversity and landscape protection concepts; management plans for landscape and nature segments with increased levels of protection; documents of the Territorial System of Ecological Stability (TSES); documentation of the landscape and nature segments with increased levels of protection; territorial planning

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	Legislation	Remarks	Ongoing processes / current tasks
			documents (Master Plans, Landscape Ecological Plans).

Identified main problem areas in national roadmaps

The national roadmaps identified two main problem areas: one of them is the conflicts between sectors while the other is in connection with involvement of stakeholders into planning, permitting, construction and maintenance processes, which can influence the effectiveness of the protection of ecological connections in practice.

Regarding ecological corridors, main **conflicts of interests** occur between infrastructure developers and nature protection, as conflicts on the relation of development and protection. Basically, the infrastructure developers have interest for the cheapest solutions in the projects, even regarding mitigation measures while nature protection has a sectoral approach with a focus on avoidance or minimisation of the negative impacts on nature.

With the **public participation / actors' involvement**, main problems are in connection with time frame, involvement method, and involved actors reach in practice. From the nature protection point of view, one the most important issues that the time frame is too short for field studies and preparation of assessments, while the infrastructure developers also have a time frame stress because of the building process (which is also related to the previous problem area that the main conflict of interest is between infrastructure developers and nature protection).

Active public consultation, active involvement of different stakeholders to decision making processes is also missing in most countries, public hearing is of a consultative nature (it has a passive, informative role). Public consultation is – in most cases – organized only in the late stages of planning, when there is no possibility to modify the plans significantly. The intersectoral meetings often are also absent from the planning process.

Regarding the main problems in EIA processes, recurring answers in the questionnaire (see **Annex 1.**) were mostly in connection with the cross-sectoral conflicts, national legislation, designation of ecological network, public participation, insufficient data quality used in EIAs, and financial problems regarding mitigation measures and monitoring activities. Regarding the exact answers, the most common and important problems or deficiencies during EIA processes are the followings (with exact citations of the questionnaire).

What are the most common and important problems or deficiencies during EIA work in your country which can influence the effectiveness of protection the ecological network?

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Hungary: „Nature protection experts often can only get involved late phases of the planning processes (when the road corridor has been already decided); lack of necessary sources (financial, professional etc.) for stakeholder involvement; too short time frame for assess and survey made; lack of (systematic monitoring) data provision by nature protection; economic and technical priorities, politics influence mainly the road corridors, nature protection aspects difficult to be enforced in the selection process; often one alternative (with or without smaller modifications) is examined in EIAs, so the comparison of different alternatives is often absent; developers strives to minimize the costs of mitigation measures and monitoring activities.”

Romania: „The fact that ecological networks don't have a clear status of protection and that they are not legally identified and designated, may affect the environmental assessments of any development project. The risk is that the wildlife movement/migration may not be a conservation criterion.”

Serbia: „Direct conflict between planners and nature conservation experts, as well as non-harmonized existing legislative on spatial planning, environmental and nature protection. Also, one of the main problems is lack of adequate public participation proposed by the Law on EIA. Also, Serbian legislative does not recognize phase of Scoping report as mandatory within the EIA process.”

Slovakia: „The most common issues identified among SEA/EIA experts in Slovakia are: insufficient underlying documentation for the elaboration of the project; circumvention of the SEA/EIA process by separating the project into sub-limit activities; non-compliance with the binding conditions specified in the final statement or decision issued in the investigation procedure, which form the basis for subsequent permitting process; absence or out-of-date documentation of Terrestrial Systems of Ecological Stability, not reflecting the actual status of the environment, or just formal assessment of impacts, not taking into consideration elements outside of the increased levels of nature protection; missing current/updated info on the ecological status of the area in question which makes it impossible to propose effective mitigation and compensation measures. The EIA documentation is often prepared in parallel with preparation of project proposal studies, which means the technical input for assessment is not usually available in a finished form. The SEA/EIA documentation is perceived as an add on burden, with little time scheduled for it, especially for field monitoring. There were efforts to separate the preparation of technical and environmental documentation, but it was not implemented. The elements of ecological networks which do not fall under areas with increased level of nature protection are often under thread during planning, as it is difficult to argue why it is important to protect them in the framework of the current legislative situation. In general, the main issue is the quality of the documentation. The transport infrastructure project documentation is however usually on a good quality level. If the final nature conservancy statement's conditions aren't fulfilled, there is lack of tools for its enforcement.”

In the foreword, some important aspects should be highlighted from above mentioned issues. EIA cannot be an effective tool for emphasizing the nature protection aspects in road/railway development projects if the **projects are divided into smaller sections** (“circumvention of the

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EIA process by separating the project into sub-limit activities”), or the **EIA is not able to assess more different alternatives of road/railway corridors** (“often one alternative is examined in EIAs, so the comparison of different alternatives is often absent”). Basic problem can be that “economic and technical priorities, politics influence mainly the road corridors, nature protection aspects difficult to be enforced in the selection process”.

The **insufficient data quality for EIAs** can have several reasons in practice. Basically, it is originated from the lack of national databases with up-to-date environmental data on nature (especially e.g., the actual ecological state of valuable habitats, occurrence of protected species, spread of invasive species), but it is also in connection with short time for field studies and assessment preparing during EIAs. Moreover, the technical input for EIAs is also deficient, because EIA documentation is often prepared in parallel with preparation of project proposal studies (study plans). For these mentioned reasons, the environmental impacts (including impacts on nature and ecological connections) cannot be assessed in an exact manner, thus it is difficult to propose effective mitigation and compensation measures in practice.

Measures of avoidance, mitigation or even compensation of adverse environmental impacts on nature are included in EIA documentations. Mostly mitigation measures are proposed in connection with ecological corridors, because avoidance of an ecological corridor with an artificial linear landscape element (road, railway) is often impossible, so the provision of ecological connectivity mostly depends on the technical solutions. Most common used mitigation measures are underpasses, overpasses, green bridges, protection barriers (e.g., fences) for the linear elements. It is necessary to emphasize that the EIA itself will not guarantee the realisation of mitigation measures, they have to be listed in the environmental authority’s decision (environmental permit of a project) and then the mitigation measures have to be designed in details in the next planning phases. A frequent problem that developers strive to minimize the costs of mitigation measures to minimize the total cost of the project.

What kind of monitoring activities are undertaken in connection with road projects and ecological networks?

It is necessary to highlight the **monitoring activity** as well, because it could be good feedback to the effectiveness of the implemented mitigation measures. Unfortunately, we can say, a lot of deficiencies occur regarding monitoring activities in connection with nature conservation in every country, mainly after the construction of the road, due to financial reasons. The implemented monitoring activities are often connected to projects or smaller areas and the collected data do not become a part of a central register / national database. Regarding monitoring activity, the main findings per country are the followings (with exact citations of the questionnaire):

Hungary: „ *The developer and also the maintenance body strive to minimize the costs of monitoring activities (put pressure on planners). There is no long-term monitoring activity (only 3 or 5 years*

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after the construction) because of financial reasons. Monitoring activities are carried out on spread of invasive species, the ecological changes of valuable habitats, the impacts on protected species and the effectiveness of over- and underpasses. The monitoring activities are carried out on the project level (by the implementer), a national database and a public body for the monitoring coordination is missing. Lack of capacity to monitor compliance with regulatory requirements is a common problem of the authorities.”

Romania: „Each project must specify in the EIA documentation its direct or indirect effects on biodiversity (and not in the special case of ecological networks). The project owner must specify in the EIA documentation which monitoring actions are proposed after the project implementation, with clear parameters and timeframe.”

Serbia: „Monitoring of the activities are carried out by State Nature conservation agency which monitors the number of protected species, spread of invasive species. These data are collected on the small areas, and are not part of central register. Also, Serbia has not yet project or implemented over and underpasses for wild animals.”

Slovakia: „Usually the monitoring consists of: evaluation of impacts on the biotic element of environment and ecological networks elements, with measures suggested: their characterisation, description, range, time frame for realisation, which are carried over to the final statement. The data are evaluated for specific project only. The databases exist, but unfortunately are usually outdated. The monitoring in connection with road infrastructure projects are usually long-term, elaborated as requested based on the permitting process. These data however remain private, do not enter any common database and for subsequent projects it is necessary to repeat the whole monitoring and field work. There is no obligation to provide these data to the state nature conservancy. Some data are aggregated by the NGOs but this is on an insufficient level and not systematic. There is no high-level cooperation with academia in building the databases. For motorway projects, the monitoring continues for 1 - 5 years.”

It is necessary to highlight, that Hungarian, Slovakian and Serbian roadmaps mainly dealt with the EIA processes and connecting conflicts of interests, while the Romanian roadmap was focusing on the connection of spatial planning and ecological network.

Based on the above mentioned issues, the summary of identified main problems can be seen in **Table 2**. in connection with EIA processes / in case of Romania in connection with spatial planning and Strategic Environment Assessment (SEA).

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Table 2. Identified main problem areas in connection with ecological corridors

	Conflicts of interests	National legislation	Ecological corridors / connectivity in practice	Public participation	EIA data quality problems	Monitoring activity
Hungary	<ul style="list-style-type: none"> • Main conflict of interests is between nature protection and infrastructure developers, e.g., developer regard the nature protection interests as “barriers” in projects • Conflicts of interests occur between nature protection and road/rail maintenance, e.g., because maintenance schedule is not agreed with nature protection aspects, lack of maintenance works / over-maintenance may 	<ul style="list-style-type: none"> • Legislation need to be created for the designated planned ecological corridors (in progress) • The terms of ‘ecological connectivity / ecological corridors’ are absent from the Gov. Decree on EIA processes 	<ul style="list-style-type: none"> • Nature protection experts often can only get involved late phases of the planning processes (when the road corridor has been already decided) • Often one alternative (with or without smaller modifications) is examined in EIAs, so the comparison of different alternatives is often absent from the nature point of view • Developers strive to minimize the costs of mitigation measures (e.g. over and underpasses) 	<ul style="list-style-type: none"> • Methodology of active public involvement is missing • Public hearing is of a consultative nature (informative purpose, not active involvement) • Meaningful involvement of local residents, NGOs into the decision-making and planning processes (like the choice of the road corridor) is absent 	<ul style="list-style-type: none"> • Lack of national databases with up-to-date environmental data on nature • Too short deadlines (e.g., for assess and survey made on field) 	<ul style="list-style-type: none"> • No long-term monitoring activity (only 3 or 5 years after the construction) because of financial reasons • The monitoring activities are carried out on the project level, a national database and a public body for the monitoring coordination is missing • There isn’t feedback (monitoring activity of realization in practice), or legal consequences of not keeping them • Lack of monitoring on the mitigation measures’

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	Conflicts of interests	National legislation	Ecological corridors / connectivity in practice	Public participation	EIA data quality problems	Monitoring activity
	<ul style="list-style-type: none"> cause damages to nature Lack of cooperation between botanists and zoologists, lack of complex ecological approach is also a problem 					effectiveness and on maintenance works
Romania	<ul style="list-style-type: none"> Main conflict of interest occurs between nature conservation and spatial planning 	<ul style="list-style-type: none"> Lack of biodiversity conservation regulations that would define, identify and designate the ecological corridors to be integrated into ecological networks 		<ul style="list-style-type: none"> There were public consultations on EIA law of Romania, but due to the national political context at that time, not all NGOs feedback was taken into account 	(Not a relevant aspect in the Romanian roadmap)	
Serbia	<ul style="list-style-type: none"> Direct conflict between planners and nature conservation experts 	<ul style="list-style-type: none"> Non-harmonized existing legislative on spatial planning, environmental and nature protection 	<ul style="list-style-type: none"> No mapped network of ecological corridors 	<ul style="list-style-type: none"> Lack of adequate public participation proposed by the law on EIA 	<ul style="list-style-type: none"> Too short deadlines (e.g., for assess and survey made on field) 	<ul style="list-style-type: none"> Data are collected on the small areas, and are not part of central register

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	Conflicts of interests	National legislation	Ecological corridors / connectivity in practice	Public participation	EIA data quality problems	Monitoring activity
	<ul style="list-style-type: none"> • Non-resolved conflicts between stakeholders in spatial/urban planning, road construction and nature conservation, and on the relation ministries, public enterprises on one side and NGOs on the other side • Nature protection experts are sometimes not enough flexible for evaluation, negotiation and selection between different options 	<ul style="list-style-type: none"> • Different application of legislation in practice in connection with ecological network • No mandatory scoping report phase 	<ul style="list-style-type: none"> • Not yet implemented or planned over and underpasses for wild animals 		<ul style="list-style-type: none"> • Area of valuable habitats is a received data which are sometimes poorly and non-adequately mapped and can make a serious problem in defining best location for the roads • Quality of the provided methodology of EIA varies depending of the institution who is in charge for EIA 	
Slovakia	<ul style="list-style-type: none"> • The investments regarding projects are being decided about in individual sectors 	<ul style="list-style-type: none"> • Elements of ecological networks which do not fall under areas with increased level of 	<ul style="list-style-type: none"> • Missing current/updated info on the ecological status of the area in question which 	<ul style="list-style-type: none"> • During the whole process there is redundancy of consultation 	<ul style="list-style-type: none"> • Too short deadlines (e.g., for assess and survey made on field) 	<ul style="list-style-type: none"> • The monitoring data are evaluated for specific project only • Monitoring data remain private, do not

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	Conflicts of interests	National legislation	Ecological corridors / connectivity in practice	Public participation	EIA data quality problems	Monitoring activity
	<ul style="list-style-type: none"> The project proposals themselves are not integrated among sectors Potential conflicts between projects of individual sectors are not being analysed and considered in a systematic way Nature conservancy often changes its binding opinions during the EIA process, which degrades the whole documentation and mitigation measures preparation process 	<p>nature protection are often under threat during planning, as it is difficult to argue why it is important to protect them in the framework of the current legislative situation</p>	<p>makes it impossible to propose effective mitigation and compensation measures</p> <ul style="list-style-type: none"> Non-compliance with the binding conditions specified in the final statement or decision issued in the investigation procedure Circumvention of the EIA process by separating the project into sub-limit activities Technical input for assessment is not usually available in a finished form, so the nature protection organ does not have all necessary information for decision process 	<p>rounds with public actors, resulting in confusion and decrease of involvement</p>	<ul style="list-style-type: none"> Lack of national databases with up-to-date environmental data on nature Just formal assessment of impacts, not taking into consideration elements outside of the increased levels of nature protection EIA documentation is perceived as an add on burden, with little time scheduled for it, especially for field monitoring The persons elaborating the EIA documentation are often under pressure of the project proponent 	<p>enter any common database and for subsequent projects it is necessary to repeat the whole monitoring and field work</p> <ul style="list-style-type: none"> No/low funding for post-realisation monitoring resulting in missed opportunities for negative impact mitigation and compensation measures

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	Conflicts of interests	National legislation	Ecological corridors / connectivity in practice	Public participation	EIA data quality problems	Monitoring activity
			<ul style="list-style-type: none"> Lack of funding for realisation of the actual proposed mitigation and compensation measures 			

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Target groups of identified main problem areas

In order to see the entire picture of the protection of ecological network (and ecological corridors) a cross sectoral knowledge transfer has to be improved between the following stakeholders: spatial planners, road/railway designers, Ministries, specialists (biologists, nature conservation experts), infrastructure development project owners, authorities, local municipalities and citizens, NGOs. This sectoral knowledge transfer can be realized with organisation of workshops, round tables, conferences, meetings or via individual reach (e.g. professional conversations). Parallel with the sectoral knowledge transfer, in order to achieve a more effective protection of ecological corridors in practice, sectoral conversations has to be started immediately to reach **sectoral consensus** covering at least in the following sectors: infrastructure development, spatial planning and nature conservation.

The target groups of identified main problem areas are the following stakeholders:

- spatial planners
 - o individual reach
 - o chambers
 - o authorities/decision makers
- road/rail designers
 - o individual reach
 - o chambers
 - o authorities
- specialists
 - o biologists
 - o nature protection experts
 - o landscape protection experts
- infrastructure development
 - o project management
- policy makers
 - o authorities
 - o NGO
 - o local stakeholders
 - o Ministries

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Vision on EIA process changes – main suggestions on national level

Main suggestions are mostly connected to cross-sectoral negotiations and knowledge transfer, active and proper stakeholder involvement, designation of ecological network, setting national databases (e.g., register of over and underpasses or vehicle collisions with animals). Follow-up processes need to be strengthened in every country in connection with the effectiveness of mitigation measures.

In Hungary, to see the entire picture of the protection of ecological network (and ecological corridors) a cross-sectoral knowledge transfer has to be improved among the following stakeholders: spatial planners, road/railway designers, specialists (biologists, nature conservation experts), infrastructure development project owners, authorities, local municipalities, citizens, and NGOs. The importance of personal relationships among different stakeholders should not be underestimated in planning, permitting, construction processes, which also influence the enforceability of nature protection aspects. The objectiveness of EIA documents could be increased if the responsibility for EIAs would be separated from the project owner (like in the case of Serbia, where mainly institutions related to the spatial and urban planning are conducting EIAs, this makes the overall process more objective). Independent monitoring body should verify the compliance of environmental studies to provide proper quality of information used the EIA documents. Moreover, assessment of different alternatives of road/railway corridors would be necessary in EIAs, in order to be capable to compare different alternatives from the nature point of view (and to strengthen the enforcement of nature conservation aspects in planning process, like ecological connectivity). Timeframe should be set up for field studies during EIAs and for long-term monitoring activities. A common database should be created including all the results of ecological monitoring activities carried out in practice, with evaluation of the results, providing access for professionals involved in road/railway planning processes. The national databases should be improved in connection with the ecological network to support the planning process e.g., covering the following issues: distribution areas of invasive species, barriers of ecological corridors, evaluation of ecological corridors' interoperability, identification of key species and key threats, pressures in case of ecological corridors with national/regional significance. Professional methodological guide needs to be prepared with formulation of proposals for planning tools, with special emphasis on the unification of the nature protection part of the environmental impact assessments and proposals regarding mitigation measures (like in Slovakia, where for linear infrastructure projects, there is practically a standardised methodology for EIA assessment).

In Romania, taking into consideration that ecological corridors have not been identified, designated or mapped in Romania, the priority should be to ensure that there is national

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legislation in place to implement the steps proposed in the roadmap, followed by the update of the EIA implementation.

In Serbia, the first step should be mapping of all ecological networks for different wild species on the national level. Only with comprehensive database on the national level, Serbia could rethink the construction of the over and underpasses as it is obliged by national regulation. Serbia needs harmonization of legislative in different area planning and nature and environmental protection (EIA) and future active involvement of all the affected target group in the process of environmental decision making. Improvement of the existing legislation is expected mainly in early involvement of the stakeholders in the process of EIA through the scoping report process, which is not obligatory at the moment. Moreover, spatial plans can serve as excellent data base on existing problems in connection with protection of valuable habitats, as well as to set strategic guidance and obligations related to the road design in terms of proposing potential locations for under and overpasses for wild animals, which can be elaborated in detail within the road construction projects and following EIA.

In Slovakia, first of all, it is necessary to reach a better integration of planning activities and synergy between sectors, for better protection of ecological connectivity. Interconnection of active (investments into protection and development of ecological networks) and passive (limits, regulations) tools should be also implemented. A closer integration of planning processes needs to be achieved between SEA/EIA and strategic fiscal planning. Secure investments in the field of adaptation to climate change impacts and improving resilience of the ecosystems should also be realized. It is necessary to provide the permitting organ with means allowing it to check and enforce the fulfilment of the permit decision conditions and the duplication of some steps in the participative processes should be reduced. A unified database storage accessible for all actors should be created, containing information on all projects implemented to provide for cumulative impact assessments. Finally, of the SEA/EIA directive is need to be updated in reflection with individual situation in member states.

The main steps of improvement the protection of ecological network in road projects on the national level are summarized in **Table 3**. It is important to decide which formulated suggestions should be handled on the national level and which aspects should be raised to the EU level, with the modification of EIA Directive (the latest amendment is Directive 2014/52/EU). This topic is covered in a separate document.

Table 3. Main steps of improvement the protection of ecological network in road projects on the national level

	National legislation	Ecological network	Enforcement the protection of ecological connectivity in practice	Cross-sectoral negotiations and knowledge transfer	Stakeholder involvement	Setting up new national databases / EIA data quality and methodology improvement	Monitoring activity, results
Hungary	<ul style="list-style-type: none"> Minimum percentage of the entry cost of a given project should be stipulated in legislation which must be spent on the ecological protection facilities Minimum size of the area intended for planting is also proposed to specify in legislation 	<ul style="list-style-type: none"> Provide legal framework for the designated planned ecological corridors Term of 'ecological corridor' should be nominated in Gov. Decree on EIAs with also requiring that the impact of the railway/road project to ecological corridors 	<ul style="list-style-type: none"> Timeframe for monitoring activities (minimum 5 years after construction) and field studies (minimum one vegetation period is needed) Substantive assessment of alternatives in EIAs 	<ul style="list-style-type: none"> Cross-sectoral knowledge transfer and sectoral consensus at least among nature protection, road/railway development and spatial planning 	<ul style="list-style-type: none"> Active involvement of stakeholders into decision-making processes 	<ul style="list-style-type: none"> National database for road/railway underpasses/overpasses National databases should be improved in connection with the ecological network to support the planning process common database should be created including all the results of ecological monitoring activities carried out Unification of the nature protection part of EIAs (methodology, used data) 	<ul style="list-style-type: none"> Follow-up processes should be strengthened (effectiveness of mitigation measures, impacts of maintenance works / lack of maintenance works)

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	National legislation	Ecological network	Enforcement the protection of ecological connectivity in practice	Cross-sectoral negotiations and knowledge transfer	Stakeholder involvement	Setting up new national databases / EIA data quality and methodology improvement	Monitoring activity, results
		should be evaluated in EIAs				<ul style="list-style-type: none"> Responsibility for EIAs should be separated from the project owner 	
Romania	<ul style="list-style-type: none"> Integration of corridors and ecological corridors approaches in the relevant national legislation Updating the legislation transposing the SEA and EIA Directives, by including the ecological corridors in the environmental procedures 	<ul style="list-style-type: none"> Identification and designation of ecological corridors and their inclusion into spatial plans at all levels 		<ul style="list-style-type: none"> Strengthen the cross-sectoral cooperation between conservation and spatial planning areas 	(Not a relevant aspect in the Romanian roadmap)		
Serbia	<ul style="list-style-type: none"> Legislative harmonisation on planning and environmental protection, as well as 	<ul style="list-style-type: none"> Mapping the ecological corridors 	<ul style="list-style-type: none"> Mitigation measures should be done for preservation of 	<ul style="list-style-type: none"> Sectoral and intersectoral meetings, workshops, roundtables 	<ul style="list-style-type: none"> Active involvement of stakeholders into decision- 	<ul style="list-style-type: none"> Reach to high level of objectiveness in multicriteria analysis with strong base for defining mitigation measures and 	<ul style="list-style-type: none"> Set up a national (central) register for existing monitoring results (protected species,

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	National legislation	Ecological network	Enforcement the protection of ecological connectivity in practice	Cross-sectoral negotiations and knowledge transfer	Stakeholder involvement	Setting up new national databases / EIA data quality and methodology improvement	Monitoring activity, results
	<p>all the other relevant sectors</p> <ul style="list-style-type: none"> Improvement of the existing legislation in early involvement of the stakeholders in the process of EIA through the scoping report process 		<p>biodiversity and ecological network, like construction of over and underpasses</p>	<ul style="list-style-type: none"> Public consultations for draft versions of protection acts Reduction of conflicts between nature conservation and road construction 	<p>making processes</p>	<p>monitoring nationwide, like in the case of Institute of Architecture and Urban & Spatial planning of Serbia (IAUS)</p>	<p>spread of invasive species)</p>
Slovakia	<ul style="list-style-type: none"> Interconnection of active (investments into protection and development of ecological networks) and passive (limits, regulations) tools Provide the permitting organ with means allowing 	<ul style="list-style-type: none"> Secure investments in the field of adaptation to climate change impacts and improving resilience of 	<ul style="list-style-type: none"> Implement integrative, synergic and cross-sectoral strategic fiscal planning and project proposal approval 	<ul style="list-style-type: none"> Conflict resolution between sectors systematicall y, negotiation between sectors Start sectoral conversation 	<ul style="list-style-type: none"> Need to reduce duplication of some steps in the participative processes 	<ul style="list-style-type: none"> Building of systematic and high level of data quality databases, like detailed database of vehicle collisions with animals Create a unified database storage accessible for all actors containing information 	<ul style="list-style-type: none"> Set up a national (central) database for existing monitoring results Funding should be increased for post-realisation monitoring (mitigation and

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	National legislation	Ecological network	Enforcement the protection of ecological connectivity in practice	Cross-sectoral negotiations and knowledge transfer	Stakeholder involvement	Setting up new national databases / EIA data quality and methodology improvement	Monitoring activity, results
	it to check and enforce the fulfilment of the permit decision conditions	the ecosystems <ul style="list-style-type: none"> • Large infrastructure projects should also provide in their budget means for maintaining ecological connectivity 	processes with common aim of protecting the ecological connectivity <ul style="list-style-type: none"> • Setting the timeframe for field studies (during EIAs) is needed 	on the feasibility of legacy change		on all projects implemented to provide for cumulative impact assessments	compensation measures) <ul style="list-style-type: none"> • Large infrastructure projects should be legally obliged to take into account need for pre-during- and post-environmental monitoring of impacted sites

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Recommendations for the common key problem areas: conflicts of interests and stakeholder involvement

Based on the main findings of the national roadmaps, the short, medium and long term recommendations and proposed solutions of the identified main problem areas (conflicts of interests and stakeholder involvement) can be seen in **Table 4**. Timeframes should be meant: next 1 year as short term, next 5 years as medium term, and next 10 years as long term. Overall, based on the national roadmaps' visions the main steps for reaching a sectoral consensus and an effective EIA process which can contribute to preserve the ecological connectivity of landscape are the followings:

1. **Sectoral and cross sectoral conversation:** continuing this just-started sectoral dialogue on EIA conflicts and potential solutions involving all the effected sectors, organizing roundtables, workshops, moderated debates etc. involving all the relevant Ministries, Chambers, professional organizations, NGOs. Sectors involvement to project workshops is also necessary.
2. **Sectoral consensus:** common approach must be provided by the sectors, as a basis of rethinking of the national legislation / review of sectoral standards and guidelines, in parallel with update EIA directive in order to support the national legacy change.
3. **Extensive cross sectoral knowledge transfer:** extensive training series for a more common knowledge base and approach in order to establish a frequent cross sectoral knowledge transfer.
4. **Educational level changes:** embed other sectors knowledge to university education.

Table 4. Recommendations and proposed solutions of the main problem areas

	Short term (1 years)	Medium term (5 years)	Long term (10 years)
Hungary	<ul style="list-style-type: none"> • Set a frame of this just-started sectoral dialogue on EIA conflicts and potential solutions by the relevant ministries, in order to have a well-established multi-stakeholder 	<ul style="list-style-type: none"> • Sectoral conversation series between opponent and co-working sectors with a series of workshops and consultations • Common approach must be provided by the sectors, as a basis of the revitalization of the national legislation 	<ul style="list-style-type: none"> • Extensive training series for a more common knowledge base and approach in order to establish a frequent cross sectoral knowledge transfer • Review of sectoral standards and guidelines must be started parallel to the national revitalization and harmonized to the sectoral consensus, followed by trainings

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	Short term (1 years)	Medium term (5 years)	Long term (10 years)
	dialogue on this crucial topic	and potential feedback to a general Directive fitness-check process	
Romania	<ul style="list-style-type: none"> Support integration of the concepts of ecological corridors and ecological network into the relevant domestic legislation by engaging the environmental, spatial planning and other relevant sectors Put in place a legislative framework that subsequently helps identify and effectively designate the ecological corridors 	<ul style="list-style-type: none"> Point out the specific steps that should be taken so that, by the end of 2025, a number of ecological corridors shall have been identified, designated and shown on the spatial plans Support joint actions in the relevant sectors, including environment and spatial planning Help competent authorities to access the necessary funding for implementation of these corridors' management measures 	<ul style="list-style-type: none"> Support alignment of the Romanian legislation with the new European provisions on biodiversity conservation and restoration Ensure continuity of designating ecological corridors and their functionality
Serbia	<ul style="list-style-type: none"> Cross sectoral knowledge transfer: sectors involvement to project workshops; start a new project proposal for better understanding with partners involving different sectors; organizing roundtables on knowledge transferring Harmonization of the existing legislative on spatial planning, environmental and nature protection Obliging the decision makers to fully implement public participation given within the Law on EIA Changing the Law in EIA in terms of defining Scoping report as mandatory phase of any planning process and conduction of EIA In near future, Serbia (after the access to EU) should adopt and implement EIA directive in all the documents related to the nature/environmental protection and development planning 		<ul style="list-style-type: none"> Cross sectoral knowledge transfer: trainings for each <u>relevant</u> sector, the chambers, independent trainers; educational level changes – embed other sectors knowledge to universities' education Future active involvement of all the affected target group in the process of environmental decision making Update SEA/EIA directive in order to support the national legacy change Ministries should adopt all the amendments of the EIA Directive and change national law on SEA/EIA accordingly
Slovakia	<ul style="list-style-type: none"> Cross sectoral knowledge transfer: sectors involvement to project workshops, start a new project proposal for better harmonisation between partners involving different sectors 		<ul style="list-style-type: none"> Trainings for each relevant sector, - chambers, independent trainers Cross sectoral dialogue,

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	Short term (1 years)	Medium term (5 years)	Long term (10 years)
	<ul style="list-style-type: none"> • Start sectoral conversation on the feasibility of legacy change • Start sectoral discussion on necessary changes to the national EIA legislation to better reflect to the national differences and idiosyncrasies 		<ul style="list-style-type: none"> • Educational level changes – embed other sectors knowledge to universities' education • Implement legislative tools for integration of strategic, synergic fiscal planning and project assessment and approval process with overall aim to protect ecological connectivity • Change the implementation act of SEA/EIA national law • Update EIA directive in order to support the national legacy change • Streamline the involvement process especially for public sector • Provide technical training and means to the personnel responsible for inspections, together with legal framework • Create a state-run, unified and publicly accessible project proposal documentation repository

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Annex 1. Questionnaire on integrating ecological corridors into EIA

1. In your country how is the protection of ecological network regulated? In your opinion how effective is this regulation? How have to these requirements be considered in a road project? Does the designation of ecological network change in practice?
2. How is the EIA Directive implemented to national legislation? In which planning phase the first EIA is included for a road project in your country? Only one or perhaps more EIAs are connected to a project?
3. What are the most common and important problems or deficiencies during EIA work in your country which can influence the effectiveness of protection the ecological network?
4. What is your opinion about the quality of the information used in the EIA documentation?
5. What kind of main databases are available for consultants who undertake the EIA work?
6. Are there any alternatives of road corridors which are evaluated in EIAs or only one corridor is evaluated in details? Protection of valuable habitats and ecological connections how can affect the decision-making processes?
7. What are the main impact avoidance / mitigation / or even compensatory measures in connection with road projects and ecological network in the EIA phase? How can these measures be realized?
8. How can other planning tools / phases than EIAs provide the protection of the ecological network in road projects?
9. Who are the main actors in major infrastructure projects in your country? How would you describe the various actors and their interests in terms of ecological network or nature protection? How do the interaction and cooperation with these organizations work in the practice? In your opinion, is their involvement to road projects successful in general? Which are the most common conflicts of interests? How are such contradictions / conflicts addressed?
10. In your country do the project owners are responsible for the writing of EIA documents? If they do, what is your opinion of this circumstance, how can EIA documents be objective?
11. What kind of monitoring activities are undertaken in connection with road projects and ecological networks? Are the data collected to a database, are they evaluated and are conclusions formulated?
12. What kind of suggestions would you have to improve the protection of ecological network in road projects on the national level?
13. In your opinion, which of these proposals should be included in the EIA Directive?
14. Consultants and experts who are responsible for the writing of EIAs, do they know the original EU EIA directive or rather follow the national legislation?

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15. How do you think the effectiveness of EIA Directive can be increased? Have you any suggestions for the modifications of EIA Directive based on your experiences which can contribute to the effective protection of ecological network?