

## **CUMULATIVE EFFECT OF THE ROAD DN 79-ARAD- BUCHAREST HIGHWAY WITH THE EXISTING OR PROPOSED OBJECTIVES IN THE AREA OF THE SITE**

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### **Abstract**

*The cumulative impact is relevant for road projects and is specified in the ELA Directive (Annex IV (4)). The "Road Arad - Timisoara A1 Road Bridge" and the DN 69 are covered by the Local and Regional Development Plans and are an important objective for achieving the main objectives of increasing mobility, area development, population health and increasing traffic safety, beneficial effects on the environment. The general objective of the project "Road A1 - Timisoara and DN 69 Motorway Road" project is to connect the A1 Motorway with the city of Timisoara and other related national and county roads in order to unload the road traffic from the A1 Arad - Timisoara Motorway with the aim of increasing mobility at the road infrastructure level of the TENT network, which will contribute to promoting economic competitiveness and improving the conditions for road freight and passenger transport and to reducing pollutant emissions by eliminating / reducing traffic jams and reducing transport times.*

**Key words:** highway, road, correlation, cumulative, impact, effect

### **INTRODUCTION**

The concept of cumulative effect is related to the aspect of coordination between different projects. In order to be able to fully identify, understand and evaluate the effects arising from the combination or accumulation of several development projects, all approved sources / projects in the area of the road site have been identified. In the short term it is the result of the transport activities of building materials, machinery, waste and personnel in support of the stages of the development and construction of the road and of the residential units in the area, Production and storage area and Storage spaces for services and trade as well and the area for a photovoltaic park, "Technological park for alternative energies and photovoltaic park Timisoara", agricultural roads, roads of local interest and the urban development proposed by Timișoara PUG and Giarmata, Sanadrei, Pischia.

### **MATERIAL AND METHOD**

In the medium term, the impact on environmental factors will be cumulated with the same objectives. At this point, no other development project whose existence generates effects that accumulate with the effects of

traffic on the road during its operating period is no longer found at the working stage or approved.

Table 1 contains emissions generated by activities identified in the site area.

Table 1

Emissions generated by activities identified in the site area

Existing/ proposed activity category	Emissions generated in atmospheric air										Noise
	Suspension powders PM10	Suspension powders PM2.5	Ben- zen	SO <sub>2</sub>	CO	Pb	As	Cd	Ni	nitrogen oxides (NO, Nox)	
Local roads	x	x	x	x	x	x	x	x	x		
Agricultural roads	x	x	x	x	x	x	x	x	x		
Combustion processes in residential areas	x	x	x	x	x	x	x	x	x		
Combustion processes in production and storage areas	x	x	x	x	x	x	x	x	x		
Combustion Processes in Storage and Service Spaces	x	x	x	x	x	x	x	x	x		
Photovoltaic park											

## RESULTS AND DISCUSSION

Interactions are related to the reactions between the effects of a project (the reaction that effects on an environmental factor may have on another environmental factor or side effects) and the relationships between the effects identified in an impact category and those identified in another category .

Table no.2 shows potential interactions.

Table 2

Potential interactions

The environmental factor / factor with which it interacts		Interactions / relationships
Air	Human beings	Air quality is important both at the local community level and at the national / global scale. In the context of the proposed project, the main issues are dust-related (both construction and operating) and emissions of gaseous pollutants and their impact on communities and residents in the adjacent area.
	Flora and fauna	Emissions of dust can affect flora and fauna
	Ape	Emissions of dust may affect the quality of surface water in the area of influence of the project.
	Goods	Impairment of air quality caused by dust emissions may affect agricultural holdings in the vicinity of the project, especially during the construction phase.
Noise	Human beings	Sensitive receivers located close to the project may be affected by increased noise intensity and duration.
	Fauna	Noise can affect animals, especially the poppy area population
	Goods	Sheep grazing on the pastures at the site are sensitive to the sudden noise episodes that may occur during construction
Landscape	Air	Effects on the landscape are diminished by building berms and covering them with vegetation; in turn, vegetation will help reduce the impact on air quality by absorbing CO <sub>2</sub> and releasing oxygen.
	Noise	The effects on the landscape are diminished by building berms
	Goods	landscaping and covering them with vegetation; in turn, they will help reduce the impact of noise

The matrix of interactions between different forms of impact is presented in Table 3.

Table 3

Interactions between different forms of impact

Matrix of reciprocal relationships	Land and basement	Water and under ground water	Air Quality	Noise and vibration	Climate	Faună	Floră	Landscape	Human	Cultural heritage	Human beings
Water and under ground water											
Land and basement											
Air Quality		•				•	•		•		
Noise and vibration						•			•		•
Climate											
Faună											
Floră											
Landscape			•	•							
Human											
Cultural heritage											
Cultural heritage											

**CONCLUSIONS**

Assessing the cumulative impact that works may have on ecosystems led to the following conclusions:

Integrity of the protected natural area of community interest is ensured by observing the conservation objectives and by maintaining the coherence of the ecological structure and its functions.

1. Implementation of the plan does not significantly change the surface of the site; following the assessment of the possible impact of the plan

on natural capital, we appreciate that the integrity of the protected areas will not be irreversibly affected by the short-term self-reliance capacity.

2. The identified impact does not result in the conservation status of conserved species / habitats.
3. The realization of the foreseen investment will have no significant direct impact on the species and habitats of conservative interest.
4. Realization of the project in the proposed parameters on the proposed site, although leading to a 0.009% reduction of the habitat 1530 \* will ensure the connectivity between DN 69 and A1 Arad - Timisoara Motorway A1.
5. Respecting the measures identified in this study will ensure that the negative impact that may occur during the implementation and running of the project is eliminated.
6. The implementation of the project will have a significant positive impact on the "air" environmental factor by actually improving the air quality in the localities crossed by the roads in the project corridor, which will in particular attract transit traffic. The realization of the connecting road will have a beneficial effect on the economic activities in the area. In the project corridor the concentrations of the pollutants will have values below the admissible limits.

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